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The Newspaper of the Industry

# Air Conditioning & REFRIGERATION

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# NEWS

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## Gov't Outlines 35% Steel Cut For Range Sale

Curtailment Is Based on Factory Value of Sales In Year Ended June 30

WASHINGTON, D. C.—Details of the curtailment order issued Dec. 15 by the OPM, calling for an average cut of 35% in the use of iron and steel in a wide variety of stoves, ranges, and other domestic cooking appliances, have been announced by the office of Donald M. Nelson, Director of Priorities. First report on the order was published in last week's NEWS.

The order applies to the period from Jan. 1 to April 30, 1942, and is based upon the amount of iron and steel used in the 12 months ended June 30, 1941.

Cooking appliances covered by the order include all types of ranges, stoves, hot plates, combination ranges, camp and trailer stoves, and fuel oil conversion range burners, using gas, electricity, coal and wood, kerosene, fuel oil or gasoline, or any combination of coal wood or fuel oil with gas or electricity.

Between now and Jan. 1, use of these critical materials will be frozen at the level of average daily use during the 12-month base period.

The approximately 200 producers affected by the order used about 500,000 tons of iron and steel in the year ended June 30, 1941, the OPM said. The initial curtailment is designed to result in savings of about 58,000 tons in the first quarter of 1942.

Curtailment is based on the size of firms, so that many smaller manufacturers located in towns where no defense work is obtainable will not be faced with too serious a labor

## Industry Curtailment Plans Shifted Over To Knudsen at OPM

WASHINGTON, D. C.—Curtailment programs for the refrigerator, washing machine, automobile, and other industries, and all other actions concerned with changing civilian facilities to wartime purposes, will henceforth be directed by William S. Knudsen, director general, and Sidney Hillman, associate director general, of the Office of Production Management.

Leon Henderson, head of OPM's Division of Civilian Supply, had been the key man in slashing of consumer goods production until the latest organizational changes were announced last week. From now on ranking officials of OPM will handle all curtailment moves, ordering appropriate divisions to evolve the

## Refrigerator Ass'n of New York To Disband

NEW YORK CITY—The Electric Refrigerator Association of New York, made up of metropolitan distributors for most nationally known lines, will be disbanded at the end of this year, Arthur F. Callahan, managing director, announced last week.

No official reason was given for the association disbanding, but it was generally understood that the curtailed production now in effect on

## Epting, Guyton and Hanson Buy Heinz Munschauer Assets

BUFFALO—A. F. Epting, R. H. Guyton, and Paul L. Hanson have purchased the Heinz & Munschauer Co., manufacturer of refrigeration equipment, and are now operating the company.

The new owners are carrying on the manufacture of household electric refrigerators, commercial refrigeration equipment, and beverage coolers. The management is also offering its manufacturing facilities for whatever use the government may have for them.

Early in 1941 Messrs. Epting, Guyton, and Hanson formed a corporation named Blue Flash Products Corp., which purchased all of the assets of the Blue Flash table top electric refrigerator division of Brunswick-Balke-Collender Co. This firm placed orders with Heinz & Munschauer.

Just recently, these men made a proposition to Heinz & Munschauer

## Use of Demonstrator Models Is Limited by Reserve Board Rule

CHICAGO—Appliance dealers selling on a "lay-away" plan may not furnish buyers with "demonstrator" models to avoid the down-payment requirements of the new installment selling regulations, the Federal Reserve Bank of Chicago has ruled.

In response to an inquiry, the Board has ruled that a dealer may not accept less than the required down payment on an article which he agrees to hold until the full down payment is made, "if as a part of the same transaction he delivers another similar article (such as a demonstrator) to the purchaser for him to use in the meantime."

On the other hand, however, a dealer may accept less than the required down payment, and perhaps a trade-in article, and furnish the prospective purchaser with a demonstrator, "if the prospective purchaser has, and knows that he has, the unconditional legal right to require

## 1941 G-E's Best In Commercial Sales

BLOOMFIELD, N. J.—The past year has been the most successful one ever experienced by the air conditioning and commercial refrigeration department of General Electric Co., reports J. P. Rainbault, manager of the department. Orders for the first nine months of the year showed a 73% increase over the corresponding period of 1940.

The defense program both helped and hindered the department's business in 1941, Mr. Rainbault declares. Sales showed a rapid rise during the first six months of the year, but

## Milwaukee Dealers Plan Dec. 29 Meeting

MILWAUKEE—Wisconsin Radio, Refrigeration & Appliance Association will hold its annual holiday luncheon and afternoon fun program Dec. 29 at the Hotel Astor here, with the serious luncheon time discussion of "What Dealers Can Do About It" on the present status of industry affairs, followed by entertainment and refreshments in the afternoon.

## Repair Status Changed Little By P-100 Order

New OPM Supplies Order Supplants P-22 on Repair Parts

WASHINGTON, D. C.—Repairs and Maintenance Preference Rating Order P-22 was supplanted on Dec. 18 by Maintenance Repairs Operating Supplies Order P-100, but so far as the refrigeration, air conditioning, and major appliance fields are concerned, the new order includes changes that are merely technical in nature.

The P-100 order doesn't give a rating for repair parts needed in equipment used by retailers or homeowners. Thus the refrigeration and appliance industries will need to wait until some special order is prepared for them, or perhaps until an order is put through that will permit wholesalers of repair parts and supplies to maintain stocks.

"Retail establishments are excluded under the order," says an official bulletin of instructions on P-100, "because of administrative difficulties inherent in operating a maintenance and repair plan in the field but generally speaking, the sweeping order extends priority assistance to many others in all segments of the American economy."

P-100 will permit suppliers who do not physically alter the parts which they supply to replace materials shipped against preference ratings granted by the order or by Order P-22. The suppliers will also be granted the right to collect the ratings served on them under this order or formerly under P-22 for a period of three months (retroactively if necessary) so as to purchase in commercial quantities.

The new order provides that when

## York Orders Increase 64% in Year

YORK, Pa.—Orders booked by York Ice Machinery Corp. during its fiscal year ended Sept. 30 totaled \$27,464,938, a 64% gain over the \$16,683,961 for the previous fiscal year. Net income after all charges including taxes amounted to \$1,202,133, compared to \$483,121 last year. Sales complete amounted to \$19,817,282, compared to \$16,163,894 last year, a gain of 22%. Unfilled orders at Sept. 30 totaled \$10,283,372, compared with \$3,046,697 last year at that date.

Current assets of the company exceed current liabilities by \$9,072,142, representing a gain of \$1,464,706 during the year.

## Krich Staff Ponders Substitute Lines

NEWARK, N. J.—The problem of "product substitution" for shortened appliance lines was discussed by Krich-Radisco, Inc., Kelvinator distributor, at a combination meeting and party here Dec. 1 attended by more than 400 dealers, salesmen, and their families.

Following a talk on "What Can We Substitute?" by Paul Krich, president of the company, suggestions by dealers and salesmen were called for, several of which may be followed by the distributorship next year in lining up its product lines. Krich-Radisco already has taken on distribution of electric sewing machines in an effort to bolster dealer revenues in 1942.

## Commercial Refrigeration Plan Of OPM To Limit Materials

Water Cooler Men Meet Informally On Standardization

NEW YORK CITY—Manufacturers of water coolers, comprising the bulk of that industry, have been holding informal meetings during the last two months, discussing the possibilities of cooperation within that branch of the refrigeration business.

Preliminary get-togethers have taken place at Cleveland, Pittsburgh, and New York City, and another meeting is planned for Detroit in January.

To date no formal articles of organization have been drawn up, although the group plans to offer its services to authorities in the OPM and other Washington bureaus, particularly with regard to standardization and specifications.

Although no company is committed to action or membership, representatives of the following concerns have attended one or more of the preliminary meetings:

Cordley & Hayes, Temprite, Filtrine, Copeland, Sunroc, Ebco, Carrier, Norge, Mueller Brass, Servel, Halsey-Taylor, and Uniflow. Other firms have indicated their interest.

A. R. Benna of Ebco has been appointed chairman of the group.

## Kitchen Bureau to Stress Health In '42 Range Drive

NEW YORK CITY—With the government's stressing the importance of nutrition to national health and defense of the nation, Modern Kitchen Bureau will build its 1942 range promotion plan around the slogan "The Nation's Nutritive Needs Turn the Spotlight on Electric Cooking."

The electric range campaign of the bureau will include the provision of sales helps of various types for dealers and utilities, and will be backed by a national advertising program in four magazines to extend over a 10-month period. Magazines to be used include "McCall's," "Good Housekeeping," "Woman's Home Companion," and "Better Homes and Gardens."

Three-quarter page, two-color ad

## Refrigerator Sales of Virginia Dealers Off But Little In Nov.

ALEXANDRIA, Va.—Continuing on the upswing, sales of electric refrigerators, ranges, and water heaters by dealers in the territory of Virginia Public Service Co. for the first 11 months of the year showed a decided increase over sales for the corresponding period of 1940.

For the month of November alone, range and water heater sales were up over the previous year's marks, but refrigerator sales showed a slight drop.

Complete tabulation of sales figures for these three appliances for both November and the 11-month period, and a comparison with corresponding 1940 marks, follows:

Appliance	Nov. 1941	Nov. 1940	11 Mos. 1941	11 Mos. 1940
Refrigerators	467	485	13,982	12,275
Ranges	274	174	2,164	1,667
Water Heaters	62	32	832	549

## Proposed 'Input' Type Of Cut Shaves Vital Material Use 25-50%

By George F. Taubeneck

WASHINGTON, D. C.—Proposed Limitation Order for Commercial Refrigerating and Air Conditioning Equipment is an "input" order (limiting the quantities of scarce materials used in manufacture) rather than the "output" type (restricting number of units to be produced).

Although the order is yet to be signed, sealed, and delivered, there seems to be reasonable assurance that it will go through substantially in the following form.

Commercial refrigeration and air conditioning products are divided into three classes of essentiality according to use. These classes are given cuts of 25%, 40%, and 50%, respectively, in the use of critical materials as compared with the base period.

This base period is the 12 months ending June 30, 1941. For the first quarter of 1941, manufacturers will use up to one-fourth of the 75%, 60%, and 50% base-period allowances granted according to class.

These classes are as follows:

Class 1 (25% cut in critical materials consumption)—Commercial refrigerating equipment, industrial refrigerating equipment, and air conditioning equipment, including any part, device, material, or insulated enclosure used in the preparation, storage, and transportation of foods (except carbonated and alcoholic beverages) and in industrial processing. Ice cream cabinets, it has been ruled, belong in this class—also reach-ins, walk-ins, low-temperature cabinets, and industrial water coolers.

Class 2 (40% cut in critical materials consumption)—Commercial refrigerating and air conditioning equipment, including any part, device, material, or insulated enclosure used primarily for the display and preparation of food products which are destined for immediate sale to the consumer at retail. This includes soda fountains exclusive of beverage dispensers.

Class 3 (50% cut in critical materials consumption)—Commercial refrigerating and air conditioning equipment not falling in either of the above two categories. This group includes draft beer coolers, vending machines, convenience water coolers, room coolers, fur storage, and florist boxes.

All equipment for defense projects, on direct government order, is not subject to these limitations. Equipment for refrigerating dairy products is also exempted from the general order.

An appeals clause grants manufacturers opportunity to appeal for

## Prices Start at \$145 On 1942 Crosleys

NEW YORK CITY—Prices of the 1942 Crosley models are up about \$25 as compared with corresponding models in last year's line, according to the new schedule for this territory, announced last week. Prices start at about \$145, and scale upward to a top of about \$270 for the deluxe 9-foot model.

New York zone list prices on the models are as follows:

A-642 Economy 6	\$144.95
SS-742 Special Standard 7	154.95
S-742 Standard 7	164.95
SE-742 Master 7	189.95
DM-742 Moist-Kold 7	224.95
SE-942 Master 9	224.95
DM-942 Moist-Kold 9	269.95

All prices include federal excise tax and warranty plan.

## Washer 'Pooling' Plan on War Work May Be Used In Other Industries

CLEVELAND—Industry-wide "pools" for production of war materials, similar to the one now in effect in the home laundry industry, will in all probability be extended to other consumers' durable goods industries, Floyd B. Odum, director of the contract distribution division of OPM, declared in a telephone address to a meeting of the household washer and ironer industry here.

Mr. Odum revealed that a series of "conversion" conferences, in which such pooling of production activities can be discussed, have been planned by his division for other durable goods industries. Many such conversions on an industry-wide scale must be worked out, Mr. Odum said, if we are to overcome the six years head start which Hitler enjoys.

Commending the washer and ironer industry for the success of its pooling arrangements, under which the three largest companies now have contracts for \$12,500,000 worth of machine-gun mounts, which they have sub-contracted among the 31 other producers in the field, Mr. Odum said he was using their industry as an example in persuading the Army, Navy, and OPM divisions to cooperate in the plan.

Industries in which "conversion"

conferences are planned for the very near future, Mr. Odum said, are the refrigerator, vacuum cleaners, furniture, and stove manufacturing lines. He promised that at the industry conferences his division will be represented "by the best engineering and organizing talent available."

"The best engineers of each industry must also be on hand," he said. "Officers of the armed forces must tell us and show us what is needed. Representatives of OPM's civilian supply division must inform us of civilian requirements. Officials of the production division must advise on overall arms requirements and facilities. Representatives of the labor division must plan the retraining of workmen. Men from the materials division must provide accurate information on scarce material supplies, and representatives of all the other interested government agencies must attend and work together like a fine football team."

Fastest method of shifting from civilian to war production, Mr. Odum said, is along industry-wide lines, "not only because it is a quick way to build more ships, tanks, and planes, but also because it offers the way to make out industrial mobilization selective, just as we make out mobilization of manpower selective."

## War Gives OPM 'Go-Ahead' on Plan To Cut Civilian Goods, Say Business Leaders

NEW YORK CITY—More stringent controls over strategic raw materials and the production of civilian goods will be two immediate results of this country's entry into war with Japan and the Axis powers, in the opinion of business leaders contacted recently by the "New York Times." For the first time, these men declared, the American people will begin to feel the pinch of an all-out war effort.

Two of the country's most vital imports, rubber and tin, now must travel through war areas from British Malaya and the Netherlands East Indies—but stock piles of these materials have been built up so during the past year that there is no immediate cause for concern, it is said.

Tin reserves here will be sufficient for at least a full year, if imports are cut off entirely it is reported. Food canning will not be affected, and canners are looking forward to the largest pack in history.

Rubber stocks in this country are said to amount to more than 650,000 tons, enough for about eight months of usage. However, there will be increased curtailment of civilian products such as tires, rubber footwear, novelties, etc.

From the broad standpoint of business, the actual start of hostilities will enable government defense agencies to go ahead on their conservation and curtailment programs at full speed, the "Times" reported. The following results were seen:

"1. More severe curtailment of production of consumer goods such as automobiles, refrigerators, wash-

ing machines, appliances, ranges, radios, and other items using vital metals. The Office of Production Management has been treading cautiously in its restriction programs to dislocate production of civilian goods as little as possible, but now that a full-blown emergency suddenly has descended on the country, there will be an all-out curtailment program to correspond with increased armament production.

"2. Price controls will be extended considerably to cover many items now exempt. Articles imported from the Netherlands East Indies, such as kapok for upholstery, tanning and dyeing materials, palm oil for preparation of soaps and margarine, cassava products for food and sizing products, flavoring extracts, and raw materials for manufacture of medicines will be put under strict government control, and where price ceilings do not exist they will be put into effect."

However, there is no immediate prospect for any severe curtailment in consumer durable goods such as automobiles, refrigerators, ranges, etc., the "Times" reports, adding that "even if such restrictions were put into effect, the public would not suffer much, it is said, because consumers have been storing up this year at a high record rate. Production of all items also has been at a peak. For 10 months, for example, sales of electric refrigerators by manufacturers have amounted to more than 3,150,000 units, against the previous full-year record in 1940 of 2,800,000 units. Electric range sales will pass the 600,000 mark."

## Knudsen To Control All Industry Planning In Gov't Shake-up

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plans in consultation with all interested parties. "The present emergency calls for an all out industrial mobilization of America in order that we may produce the amounts of materials we will need to win the war in the shortest possible time," says OPM in explaining the shift in responsibility from Mr. Henderson to Messrs. Knudsen and Hillman. "Industry must be converted as quickly as possible into making goods for either military purposes or for essential civilian needs."

"By essential civilian goods," adds OPM, "we mean the minimum a civilian economy can get along with so that the maximum amounts of materials and resources will be devoted to the vast war effort."

"In order to speed up this conversion it is necessary to have the full participation of industry and labor. To facilitate this, the Director General and the Associate Director General of the Office of Production Management have taken direct charge of the Industrial Branches of the Office of Production Management."

"To accomplish this objective, an Administrative Order has been issued providing that, effective Dec. 18, 1941, the Industrial Branches now reporting to the Division of Civilian Supply and the Purchases Division will report directly to the Director General and the Associate Director General. The other duties and responsibilities of all services and divisions of OPM remain unchanged."

The change, officials believe, will speed up war production, hasten the conversion of civilian industry to war output, and widen the participation of management and labor along every step of the way. Orders have been sent to all industry branch heads to draw more extensively upon the experience and active service of labor and management committees in meeting war problems.

OPM's plans for conversion of manufacturing industries to war production will entail other wartime programs, OPM announced, such as:

- 1—Curtailement of production for civilian use.
- 2—Surveying of the defense potential of the industry, plant by plant.
- 3—Spreading of war orders.
- 4—Conversion of facilities.
- 5—Transfer and retraining of workers.
- 6—Provision of materials for both defense and essential civilian production.
- 7—Assurance of efficient and speedy production.
- 8—Development and use of subcontracting to the fullest extent.
- 9—Conservation of strategic materials.

In the same reorganizational move that reduced Mr. Henderson's curtailment authority, OPM has ordered all industrial branches reporting to Douglas C. MacKeachie, chief of the Purchases Division, to henceforth report to Messrs. Knudsen and Hillman.

Floyd Odum, director of the contract distribution division, will be represented at all meetings on plant conversion or production curtailment, to give advice on small plant conversion and the division of subcontracts on as wide a scale as possible.

Industrial branches affected in the civilian supply division include: pulp and paper, printing and publishing, lumber and building materials, plumbing and heating, electrical products and consumers' durable goods, automotive, transportation and farm equipment, industrial and office machinery, rubber and rubber products, and state and local governments.

## Cooking Equipment Of All Types Hit By Cut In Steel

(Concluded from Page 1, Column 1)

displacement problem, OPM pointed out. The industry as a whole is not well adapted for conversion to defense work, it was said, lacking the equipment for precision work. About 60,000 workers are employed in all branches of the industry.

Companies are rated according to the factory sales value of products manufactured during the base period, the 12 months ended June 30, 1941. Percentage cut for each class during the first quarter of 1942 is shown in the following table:

Class	Factory Sales Value	% Cut
A	\$3,000,000 or more	42
B	\$1,000,001 to \$3,000,000	36
C	\$1,000,000 or less	30

Government purchases of cooking

appliances obtained on a competitive bidding basis for defense housing are excluded from the quota, as are lease and certain other defense purchases.

Other important provisions of the article are:

1. Effective Dec. 15, no manufacturer is permitted to use iron or steel to produce cover tops or lids to cover cooking surfaces of cooking appliances equipped with tops or lids containing these materials.
2. Effective Feb. 1, no manufacturer can use any bright work, bright finish, metal finish, or trim containing copper, nickel, chrome, or aluminum in producing the appliances.
3. Inventories of raw materials, semi-processed materials, or finished parts are restricted to minimum requirements.
4. Manufacturers cannot shift production between different fuel types, without appeal to the Office of Production Management.

The order, which does not affect institutional and commercial appliances and does not cover repair and replacement parts, was drafted by the Electrical Products and Consumers Durable Goods branch of the Division of Civilian Supply after meetings with industry representatives and consultations with interested governmental agencies.

## Ashbaugh To Manage Mfg. & Engineering For Westinghouse

MANSFIELD, Ohio—Appointment of John H. Ashbaugh as manager of manufacturing and engineering of the Westinghouse merchandising division has been announced by B. W. Clark, vice president.

Mr. Ashbaugh has been acting manager of the two departments since January, 1941. He directs the manufacturing and engineering activities of the two Westinghouse merchandising division plants, here and at Springfield, Mass. These plants are now at work on national defense orders—for bomb fuses, binoculars, shells, and other articles for the armed forces—as well as electric home appliances and commercial refrigeration and air conditioning equipment.

## Refrigeration Group In N. Y. Disbands

(Concluded from Page 1, Column 1)

most major appliances was a primary consideration. The organization was a major force in appliance merchandising here, and was generally considered to be one of the most helpful and effective groups of its kind in the country. The association was incorporated in 1933, as the outcome of certain recommendations which Mr. Callahan had made to some of the distributors concerning increased protection in connection with their operations in the mortgage and insurance company fields. Since that time, however, the organization has extended its activities considerably to various other phases of the appliance business, although it has consistently refrained from making any public expressions of its activities or policies. Mr. Callahan has been associated with the organization since its inception.

## Hearings on Copper Situation Dropped By Senate, SPAB

WASHINGTON, D. C.—With the tempo of the government stepped up tremendously because of the war, the proposed "double-barreled" investigation of the copper situation has been pushed into the background, at least temporarily.

The Truman committee of the Senate, which had been investigating copper, lead, and zinc, announced last week that further hearings had been indefinitely postponed.

This committee, which had been examining the whole defense structure of the government, undertook the study of the copper situation at the request of the Rural Electrification Administration. REA officials had claimed unfair treatment in the allocation of copper, saying that the "copper situation smells to high heaven."

Immediately following the Truman committee's instigation of a copper investigation SPAB announced plans for a public hearing on copper to be conducted by Chester Davis, who was selected by OPM as an "impartial chairman." After being postponed to Dec. 18, this hearing was dropped, "due to increased activity which the present war effort is requiring of all officials in government, industry, and labor groups," SPAB announced.

Mr. Davis, however, has been requested to obtain written statements from all persons who have suggestions as to ways in which copper production can be increased, and that he then analyze these suggestions and submit his findings to SPAB for such action as may be indicated. In the meantime, a government-management-labor conference to plan a comprehensive program for the entire copper mining and smelting industry which would provide continuous operation for wartime production was scheduled for Dec. 18 by Sidney Hillman.

At this meeting labor and management from the four major copper-producing areas, Arizona, Montana, Utah-Nevada, and Michigan, were expected to join in working out improved methods.

## 4-Point Program Given For Upping Production

WASHINGTON, D. C.—Four-point program for increasing production of copper has been recommended by Russ Nixon, Washington representative of the United Electrical, Radio, and Machine Workers of America. He suggests:

- (1) Insistence on maximum production of copper with government operation of mines as the alternative.
- (2) Bonus prices where necessary for extra production—not all production.
- (3) Institution of such labor conditions as will make full shift operation of all mines a practical possibility.
- (4) Development of substitutes for copper on a broad scale.

When Ben Riskin, representing the union of Mine, Mill, and Smelter Workers (CIO), testified before the Senate's Truman committee, Senator Johnson of Colorado interrupted to state the mine operator's tax problem. He questioned whether operators might not hesitate to deplete their supplies by increasing production if the government absorbed all the profits. Mine operators have the right to expect the cooperation of the government, including the taxing bodies, in this emergency, the Senator declared.

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## Manufacturers Aid Dealers' Fight on 'Industrial Selling'

NEW YORK CITY—Encouragement to electrical appliance dealer associations and other retail groups actively battling against the diversion of retail trade is the recent adoption by the National Association of Manufacturers of a resolution disapproving of so-called "industrial selling."

The resolution, which is being given national publicity through the efforts of the New York Council of Retail Trade Diversion, Inc., reads as follows:

"A manufacturer should not sell his products to another manufacturer for resale to officers and other employees, or directly to such officers and other employees at less than retail prices;

"Should not resell to officers or other employees merchandise which he has bought for his business use, except for occupational use;

"Should not permit officers and other employees to buy merchandise direct on his order, or indirectly on the strength of his name;

"And should not allow the sale of his product to his own officers and other employees for resale."

The fight against diversion of retail trade has been particularly active in Wisconsin, and has been pushed vigorously by the Wisconsin Radio, Refrigeration, and Appliance Association and other state retailer groups. When this culminated in the present state law outlawing wholesale buying for employees of business and industrial concerns, most Wisconsin firms said they welcomed it as a desirable means of abandoning a practice which had become a nuisance, and which was recognized as detrimental to the business welfare of the state.

Other states, notably Illinois, have either adopted or are in process of promoting laws similar to that of Wisconsin.

## Expanding Production Results In Transfer Work on Systems

HOMESTEAD, Pa.—Removal of 2,000 families, half the residents of this town, to make way for the \$75,000,000 addition of the Carnegie-Illinois Steel Corp. plant has given S & S Service Co. a new kind of "defense work"—the job of moving 10 complete commercial refrigeration systems from one location to another, reports Edward Schick, one of the operators of the service firm.

Jobs called for the transfer, in from 18 to 24 hours for each job, of systems ranging from 1/2 to 1 1/2 hp. in size in butcher shops, groceries, clubs, and beverage distributors from Homestead to the nearby towns of Irwin and Munhall. Club jobs resulted in sales of additional equipment, and the remodeling of the system when re-installed.

## Lavedan New President of Liquid Carbonic

NEW YORK CITY—P. F. Lavedan, vice president of Liquid Carbonic Corp. here, has been named president of the company, succeeding C. G. Carter, now chairman of the executive committee. J. H. Pratt, vice president with headquarters in Chicago, has been promoted to executive vice president.

## Duluth District Sales Show Gain of 16%

DULUTH, Minn.—Household electric refrigerator sales reported by Minnesota Power & Light Co. for the first seven months of the year totaled 2,792 units, a gain of 16% over the 2,396 unit sales reported for the same period of last year.

Other major appliances showed even greater sales increases. Leading the way were electric ranges with 968 sales reported, an increase of 59% over the 607 sales reported for the corresponding period of 1940. Water heater sales rose from 229 to 353, a rise of 54%.

## Locker Meeting In Sept.

DES MOINES, Iowa—Fourth annual convention of the National Frozen Food Locker Association will be held Sept. 22-24 at Kansas City. The executive committee also has

announced a three-fold program for the coming year. This program places particular stress on the importance of more and better regional or sectional meetings of operators, increased cooperation with the government's program of improved nutrition for the American public.

## Jones Leaves Cleveland Electrical League

CLEVELAND—Ralph H. Jones, for the past nine years secretary of the Electrical League of Cleveland, has resigned from that position to

become managing director of the Cleveland Executives Association.

He will be succeeded at the Electrical League by Will T. Clark, who has been associated with the league for the past several years as director of publicity. Mr. Clark's background includes wide experience in the utility field, and at Nela Park.

# HOW TO SAIL THRU A SALE !

HOW TO SELL REFRIGERATORS...WITH 9 MOVING SCENES AND A STRONG FINISH!



**1. KNOW YOUR STREAMLINING**—Show how it makes for convenience as well as beauty. Modern design is a strong sales point... whether it's on a locomotive, automobile or refrigerator.



**2. BE AN AUTHORITY ON OPERATING COSTS**—Show how operating costs can become operating profits. Be able to figure it out for her in dollars and cents. Then your sales talk will click faster.



**3. KEEP UP WITH MOTOR RATINGS**—Show how modern motors use less power and do a better job at lower cost. Spell this out in terms of household savings. You'll get more replacement sales.



**4. DRAMATIZE THOSE CUBIC INCHES**—Show how smaller units take care of more food and a bigger family through better arrangement. Today's practical housewife will listen.



**5. DEMONSTRATE THOSE TRAYS AND LATCHES**—Show how an ingenious door latch or ice-cube remover saves time and trouble. Every woman likes gadgets that help make her housework easier.



**6. EXPLAIN ABOUT INSULATION**—Show how this hidden feature keeps cold in and keeps heat out... protects food BETTER. Promise her less food spoilage and you're on your way to a sale.



**7. PLAY UP THE SAFE REFRIGERANT**—Show how it has proved safe and efficient while protecting food in thousands of homes. It pays to answer questions like this before they are asked.



**8. GO INTO THOSE FOOD STORAGE ZONES**—Show how the different zones for each food keep everything tastier, save losses. But don't talk generalities. Give exact temperatures and humidities.



**9. KNOW YOUR HEALTH NEWS**—Today's news stories stress our vital need for food preservation and conservation. Clip these stories and use them to sell modern refrigeration...to the modern housewife.



## 10...AND FINISH WITH THE FINISH!

"This DULUX Label? Why, it's your guarantee of a finish that starts white and stays white. The majority of the refrigerators of all makes today are finished with DULUX. It's made by Du Pont."

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Of course, her eyes will brighten at these

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So talk about DULUX early and often...to every prospect. Successful salesmen will tell you it pays! E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington, Delaware.

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## Maximum War Effort Will Need Smaller Industries—Senator

NEW YORK CITY—Maximum defense production will not be attained until smaller industries participate, Senator James M. Mead of New York told members of the American Business Congress meeting at Hotel Pennsylvania here recently, adding that he believed subcontracting would increase.

The difficulties that small firms are encountering when they attempt to obtain loans at reasonable interest rates was cited by Senator Mead, who described the efforts he is making to alleviate the condition.

"It might ordinarily be said that if a prime contractor elects to use subcontractors, the responsibility for their selection and for their financing is upon the prime contractor," Senator Mead said. "In view of the fact, however, that the government is insisting that the prime contractor subcontract as much as possible of the work, the government cannot escape some of the responsibility."

Since local banks cannot and should not be expected to advance credit to small firms subject to substantial risks, loans of this character should be made from government funds, contends Senator Mead. He said that he had proposed the broadening of the industrial lending authority of Federal Reserve banks, and that a subcommittee of the Senate Banking and Currency Committee is conducting hearings on this suggestion.

## Mrs. Pass Up Bids On Housing Project

PORTSMOUTH, Ohio — Deadline for bids on 135 refrigerators for installation in Farley Square, new low-cost Negro housing project here, passed without a single bid having been received by the local Metropolitan Housing Authority.

Refrigerator manufacturers, hard pressed by priority restrictions, apparently were unable or unwilling to tackle the job of supplying the units. Housing officials frankly admitted that they were stumped.

**The Machine For Your Next Job...**  
If it's a refrigeration job... no matter how big or how small... we can supply Lipman equipment to fit the specifications. Let us work with you.

**GENERAL REFRIGERATION DIVISION**  
Yates-American Machine Co.  
Dept. AC-3, Detroit, Mich.

**Model 153 Water-cooled Machine**



## Immediate Information On Inventories Asked By Donald Nelson

WASHINGTON, D. C.—Appealing to manufacturers who hold inventories of material greater than their needs, Donald M. Nelson, director of priorities, last week asked those manufacturers to make their supplies available for military production without the government's being forced "to resort to the slower process of requisitioning."

A new inventories and requisitioning section has been created in OPM with the power to requisition necessary materials.

"We know," Mr. Nelson said, "that many manufacturers, both large and small, are holding inventories particularly in metals in excess of present demand. These metals are needed, and are needed now for war. We want to forge every weapon at our command, and we want to do it immediately. Patriotism and voluntary release of inventories will help us, at the moment, more than other thing to do just that."

Iron and steel scrap are as important as raw materials, he added. Manufacturers are asked to wire Mr. Nelson directly, giving size of inventories of critical materials, and amounts of each they can spare for allocation for war production.

## 46 Sterilamps Used In Columbus Hotel Cooling System

COLUMBUS, Ohio — First large scale hotel installation of Westinghouse "Sterilamps" has been made in the kitchen, food storage chambers, and air conditioning system of Hotel Fort Haynes here.

A total of 46 of these bactericidal lamps were installed in air conditioning ducts to sterilize air entering the cocktail bar, dining room, and executive offices at the rate of 12,000 c.f.m.

In the hotel's kitchen, employees work under a series of 13 Sterilamps suspended from the ceiling to protect food preparation, cooking, and dishwashing.

Walk-in meat coolers, vegetable storage rooms, and reach-in food boxes are equipped with a total of 11 lamps.

## New Appliance Dealer Set Up In Columbus

COLUMBUS, Ohio—A new appliance firm has been organized here under the name of Columbus Appliances, Inc., and has been granted a charter by the Secretary of State.

Incorporation is being handled through the offices of Troy A. Fiebel, attorney. Mr. Fiebel is named as an incorporator and as the company's statutory agent. Other incorporators are Edith P. Stenger and Ila Greer, both associated with the Fiebel law office.

Announcement of operations and firm personnel is being withheld.

## Refrigerant Supply & Problems of Substitution Discussed By ASRE

ST. LOUIS—Supplies of "Freon-12" and methyl chloride look now to be adequate for the maintenance of existing refrigeration equipment, but how much will be available for new equipment is still pretty much a matter of conjecture, it was revealed during a forum on "Refrigerants," held at the recent annual meeting of the American Society of Refrigerating Engineers here.

E. W. McGovern, R. & H. Chemicals department, E. I. du Pont de Nemours & Co., declared that this producer of methyl chloride refrigerant was following a policy of pegging sales of the gas to the refrigeration industry at a level equal to that before the emergency arose.

Thus far, he explained, the government had not placed obstacles in the way of getting raw materials to make refrigerants for sale at that level, probably for the reason that a big share of such refrigerant is used to maintain existing systems.

### METHYL SITUATION

"Since all methyl chloride is made from various critical materials—chlorine, methanol, or both—and since caustic soda and sulphuric acid are also short, the government will thus be the final word on how much the producers will be allowed to make in the future," Mr. McGovern declared.

"There is not much point in changing over from 'Freon-12' to methyl chloride now, because it is a jump from the frying pan into the fire, because of the critical rating of the materials involved."

Sulphur dioxide is the most plentiful of the common refrigerants now, and is likely to be found more in new machines than has been the case in the past few years, said the speaker. However, it is not so easily substituted for other refrigerants in existing installations.

R. J. Thompson, chief engineer, Kinetic Chemicals, Inc., explained that the matter of obtaining sufficient supplies of carbon tetrachloride, essential to the manufacture of "Freon-12" was still a problem, but he expressed optimism over the possibility of getting sufficient raw materials to increase the supply of this refrigerant next year.

Mr. Thompson again sounded a warning on the hoarding of containers, a factor which is seriously hampering the problem. There is a possibility that Kinetic Chemicals may take some action such as refusing to ship to accounts who hoard containers, and the assessment of a penalty charge against those who hold cylinders too long.

### NEED CORRECT INSTRUCTIONS

If a changeover is made from one refrigerant to another, it should be done only where specific instructions for the make and model of the machine have been obtained from the original manufacturer.

"It is impossible to provide a few simple statements of instructions that will cover the changeover for all makes and types of machines," Mr. Thompson declared.

In any consideration of making a change of refrigerant in a machine from "Freon-12" to sulphur dioxide, it was said that the following four factors should be taken into consideration:

1. Whether or not the refrigerant-containing part of the unit contains any aluminum. Methyl chloride and aluminum often react in a manner that creates deposits injurious to the refrigeration system.
2. A check should be made to learn if the local safety codes permit the use of the proposed substitute refrigerant. While some codes have been made lenient "for the duration," many others have not let down the bars at all.
3. The difference in pressure-temperature characteristics in the refrigerants will necessitate changes in expansion valve and control settings.
4. It will be necessary to give consideration to possible changes in valve orifices and refrigerant pipe sizes.

In a prepared statement Mr. Thompson stated the following:

"During the months of July to October inclusive of this year the supply of 'Freon-12' refrigerants was less than the demands. The increased demands were brought about by nor-

mal increase in refrigerating and air conditioning equipment sales, additional sales for defense purposes, and increasing accumulation of existing equipment requiring refrigerant for maintenance purposes. These demands resulted in an inadequate supply of carbon tetrachloride which is essential to the production of 'Freon-11' and 'Freon-12.'

"There has been a movement initiated by several individuals looking toward various associations and engineering societies to instruct the less informed how to convert refrigerating and air conditioning systems which have been designed for 'Freon-12' to the use of methyl chloride or sulphur dioxide. In my opinion, which is well founded on engineering principles, such conversion is impractical and should not be attempted by the operator or service engineer."

### CHANGEOVER PROBLEMS

"I have a reprint from the Oct. 23, 1935, issue of REFRIGERATION NEWS entitled, 'Dangers and Problems in Attempts to Change Refrigerants,' and also a reprint of a paper prepared for and presented to the Refrigeration Service Engineers Society at their seventh annual convention in Chicago in January of this year. By referring to these two articles you will find that our position with respect to the conversion of SO<sub>2</sub> and methyl chloride designed systems to the use of 'Freon-12' has been that we do not believe it advisable and have strongly recommended against it. My position, therefore, at this time is perfectly consistent as we strongly advise against making any attempt to change a 'Freon-12' designed system to sulphur dioxide, methyl chloride. More detailed information covering the various items will be found in the two articles previously mentioned."

### POINTS IN CHANGEOVER

"1. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system will decrease the capacity of the compressor unit from approximately 5 to 40% respectively due to the fact that a greater volume of vapor would need to be compressed per minute for the same B.t.u. capacity."

"2. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would cause flooding of the evaporator and short cycling of the compressor unit due to the fact that the orifice area in the float or expansion valve or the capillary tube would be approximately two to three times respectively greater in excess of the diameter required to meter the proper amount of refrigerant for satisfactory operation due to the differences in heat values and density of liquid refrigerant."

"3. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would cause the head pressure to be 10 to 40 pounds gauge lower respectively and the back pressure to be 5 to 15 pounds gauge lower respectively due to the fact that the pressure-temperature relationships of the three refrigerants are not the same thus affecting the calibration of float or expansion valves, capillary tubes, unloading

valves, water valves, pressure cut-out and other pressure controlled apparatus.

"4. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would no doubt cause violation of existing safety code regulations."

"5. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would no doubt meet with the disapproval of the Underwriters' Laboratories who had originally approved the particular system."

"6. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would necessitate the changing of the refrigerant charge nameplate on the compressor so as to inform the owner, code inspector, or some other service engineer as to the name and amount of refrigerant in the system so that he might be governed accordingly."

"7. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would necessitate the complete dismantling, thorough cleaning, and recharging with 'Freon-12' to place the system back into satisfactory operation."

"8. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would cause faulty operation of float valves due to the difference in buoyancy of the refrigerant liquid or mixtures of refrigerant saturated with mineral lubricating oil."

"9. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would cause injurious effects to various construction metals or materials which might be in the system, such as, aluminum, die castings, rubber, insulating varnish, or wire covering, etc."

### ALUMINUM CORRODES

"In the last few years a great many compressors have been constructed with aluminum or aluminum alloys in such parts as pistons, connecting rods, valve plates, valves, hermetic motor rotors, tubing etc. Methyl chloride will cause corrosion of such aluminum parts and I would refer you to the August, 1937, issue of 'Refrigerating Engineering,' page 89, and especially page 126, where the research department of one of the companies manufacturing methyl chloride believes that it is inadvisable to use the refrigerant in cases where aluminum, magnesium, and zinc are present. Sulphur dioxide will have injurious effects upon certain wire coverings used by some manufacturers in hermetically sealed units."

"10. Methyl chloride or sulphur dioxide in a 'Freon-12' designed system would require a change in method of leak detection due to the fact that the use of a Halide leak detector torch might cause a fire or explosion should a flammable or explosive mixture of methyl chloride be present in a confined or limited space. In the case of sulphur dioxide, which is non-flammable, a Halide torch could not be used for locating a leak."

### OTHER DESIGN ITEMS

"Other items which have entered into the design of the original 'Freon-12' system are temperature of superheat, viscosity of liquid and vapor, thermal conductivity of liquid and vapor, solvent action on mineral lubricating oil, lubrication system, surface wetting characteristics of the refrigerant, density of vapor as it affects intake and discharge valve design, and many other items none of which can be changed by any service engineer in the field."

## FOOD WILL WIN THE WAR!

"Back up our War Program—Prevent Food Waste. Make more and better foods available for our armed forces."

Refrigeration is the ideal method of preserving foods.

We invite and welcome the opportunity to co-operate in every way for a satisfactory and economical solution of your refrigeration problems, whether in plant or transportation. Users know Dole Plates give 100% satisfaction—

# I C T O R Y

Sign your name to this ad, clip and mail to us and our representative will call promptly.



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New York Branch - 601 W. 26th St., New York City.

**SQUARE D IN REFRIGERATION**

**DO IT ALL WITH SQUARE D**



**SQUARE D COMPANY • REGULATOR DIVISION • DETROIT**

**'Blackout' For Cleanliness****\$3,000,000 Plant For Fluorescent Lights Conditioned To Control Manufacturing**

FAIRMONT, W. Va.—A zone-controlled air conditioning system permits uniform temperatures despite widely varying processing conditions in the \$3,000,000 windowless plant recently built by Westinghouse here for production of fluorescent lamps. The plant has nearly 5 acres of floor space under one roof, and an ultimate capacity of 200,000 lamps a day.

Demand for fluorescent lamps has been accelerated by the increasing number of "blackout" industrial plants built during the past few months.

**WINDOWLESS BUILDING**

The main Westinghouse plant here is a one-story, windowless structure 244 feet wide by 885 feet long, and houses all fluorescent-lamp-making machines, a six weeks' supply of raw materials and finished lamps, general offices, locker and toilet rooms, first-aid station, recreation rooms, cafeteria, kitchen, and a machine shop.

Windowless design, with its necessity for complete air conditioning, was not adopted with the intention of providing a "blackout" plant in the current sense, but was necessary because working conditions must be closely controlled. Dust-free air is particularly important in manufacture of fluorescent lamps; dust particles clinging to the inside of the glass tubes before coating produce irregularities that may affect operation of the finished lamp.

For this reason the regular air conditioning system is supplemented by Westinghouse Precipitron electrostatic air cleaning cells, which remove approximately 90% of all airborne particles before incoming air is circulated in the plant. Air in all ducts is irradiated by a total of 600 Sterilamps, which destroy bacteria and other micro-organisms. Shipping and receiving rooms are provided with "air curtains" (separated double doors with air chambers between) to help keep dust out of the plant.

**USE ZONE CONTROL**

The air conditioning system is provided with zone control to keep temperature fairly uniform throughout the plant, despite widely varying processing conditions, and secondarily to make sabotage or bombardment less effective, if that ever becomes especially important. Because some 40 million cubic feet of natural gas per month will be burned in glass working, air is not recirculated in the main manufacturing area. Proportion of fresh air to recirculated air in offices may be adjusted to suit requirements.

Air ducts are supported on the lower chords of trusses extending from the coils, and blowers located in the same general position. When

heat is required in the building, gas-fired unit heaters are used.

An unusual part of the air conditioning system is the method of air cooling. It comprises two separate systems of circulating water. The primary system consists of a 3,600 g.p.m. flow of water at 55° F. pumped from an abandoned and sealed coal mine 1,800 feet away and 150 feet lower in elevation. Mine water is pumped to a heat-exchanging reservoir just outside the building, and back to the coal mine through a drill hole. The secondary system consists of a closed circulation of ordinary city water, through cooling coils in the building, and then to the heat-exchanging reservoir, where heat is extracted and carried away in the primary system. Heat exchange is accomplished by copper coils in the mine water.

**Store's Cooling Plant Works at Full Or Half Capacity, According to Load**

ST. LOUIS—Extreme economy and flexibility of operation were "written in" to the specifications of an 80-ton air conditioning system which is part of the \$50,000 remodeling of Greenfield's department store here. The system, third to be installed in a major St. Louis store in the past two years, was completed recently by Natkin & Co., Westinghouse distributor and dealer here.

Covering four floors, the system is smaller than would have been required for the former building, for the entire exterior of the store was re-surfaced in Tennessee marble, which has relatively low heat conductivity.

Cooled, filtered air is delivered to each floor through a "diminishing" duct narrowing from the point of entry to the opposite wall. Automatic dampers for each floor permit the system to keep each floor cooled to 80° F. with a minimum of circu-

lation. When any one floor is not busy, dampers cut delivery of cooled air by as much as 50%.

The refrigeration plant is located in the basement, except for the evaporative condenser which has been built on the roof of a one-story annex next to the Greenfield building and connected with asbestos-insulated lines to the compressor.

Compressor itself is an 80-hp. centrifugal unit of a new "step-down" type; with an "unloader" provision which makes it possible for the compressor to run at 50% tonnage output and with 50% current consumption when the load is reduced.

Control is furnished by two-stage thermostats on each floor, sensitive to single-degree changes in temperature. These thermostats operate the system either at full or half capacity, depending upon load requirements.

Thus, when the temperature is 80° the cooling system operates on 40 tons output until an increase in traffic or outside temperature increases store interior warmth. At 81° the automatic thermostats switch on the full 80 tons cooling capacity. When the building is cooled to 79° the compressor cuts out altogether.

Fitting rooms on the new third-floor ladies' ready-to-wear section, where cooling is particularly important from the standpoint of better fit and comfort, have been given special treatment.

Instead of installing separate ducts, tops off the small fitting cubicles along the wall were left open, and grilles were located in the baseboard of the enclosures. This allows cool air from the ceiling to sink directly through the fitting rooms and out the cold air grilles near the floor, preventing "bottling up" of heat in the rooms.

Chief economies effected by the new system are starting and stopping wear on the compressor and motor, lower power consumption costs, and greatly decreased freedom from servicing, according to William Norris, Natkin & Co. engineer who designed the Greenfield cooling job.

**IN THIS OFFICE BUILDING****...THIS STORE****...AND THIS FACTORY****WINDOWLESS CONSTRUCTION HAS PROVED ITS MERITS!**

IF YOU HAVE any doubts about the broad utility of windowless buildings, here's convincing proof that buildings of all kinds can be better designed today—without the limitations of windows. For here are three entirely different types of constructions, each designed for a different function, yet each of which has benefited by eliminating windows.

One is a factory, another an office building, the other a retail store. And each of these buildings has eliminated high costs for heating, maintenance and repairs. Each obtains better air and light without space-wasting light wells, high ceilings, unequal rent or production values.

These buildings use modern air conditioning for winter and summer which supplies clean air at proper temperature and humidity—perfect ventilation with no need for windows that let out expensive heat, let in distracting noise. And windowless buildings today can

have bright daylight all the time, unaffected by the vagaries of the weather. Indeed, fluorescent lighting is even better than daylight—because in sunshine or rain, the illumination can be uniform throughout the building.

Consider the heat wasted by windows. In windowless buildings, the reduction in heating costs in the winter offsets the additional cost in summer months of both air conditioning and lighting!

Elimination of "E" and "L" construction for large buildings brings down the cost per cubic foot, increases and helps equalize rental values. Air conditioning, fluorescent lighting and proper use of color have outmoded high ceilings, permit more floors, more usable space for a building of a given height.

These are the main sources of savings and greater values in windowless buildings. Consider them carefully. Present conditions make a detailed evaluation of this modern construction more important than ever before.

**Inside facts...**

*about windowless buildings!*

- ★ Lower Cost Heating, Maintenance and Repairs
- ★ More Floors for the Building Height
- ★ Greater Flexibility of Layout
- ★ Elimination of "E" and "L" Constructions

Kinetic Chemicals, Inc., the manufacturers of "Freon"® refrigerants, specified by the careful architect because they are safe and efficient.

\*"Freon" is Kinetic's registered trade-mark for its fluorine refrigerants.

• This is one of a series of advertisements appearing in Architectural Forum magazine, designed to stimulate interest in the use of air conditioning in industry. Kinetic Chemicals, Inc., Wilmington, Delaware.

**30-Ton Unit Controls Humidity In Aircraft Plant 'Dope Room'**

MIAMI, Fla.—To maintain absolute control over humidity in its "dope room," Intercontinent Aircraft Corp. here has installed a 30-ton Carrier 39-Q-6 unit, pneumatically controlled, to serve that section of the plant.

"Doping" consists of treating the fabric covering of plane-wings with a banana oil compound which seals up the mesh in the fabric. The process requires absolute humidity control, a constant 50%, which is obtained by pneumatic control of the refrigerant suction valve and the valve which regulates the steam re-heating coils. Because of the inflammability of the "dope," exhaust fans are equipped with aluminum blades to prevent sparking.

The installation was made by Paul White and Jack Mitchell of Belcher Industries, Inc.

Besides the "dope room," the company's general office building is air conditioned by a 30-ton Carrier unit operating in combination with electric strip heating provisions. The office building covers about 12,000 sq. ft. A 15-M4 "cold diffuser" refrigerates two cold storage rooms in the plant's employee cafeteria.

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### Refrigeration Will Help Win the War

### A Good Job Deserves Support; Let's Give It!

TEXT of the Proposed Limitation Order for Commercial Refrigerating and Air Conditioning Equipment, as disclosed on page 1 of this issue of AIR CONDITIONING & REFRIGERATION NEWS is so sound, informed, and sensible that members of the industry should take off their hats to those responsible for drawing it up.

Let's hope it passes through "the works" quickly, and soon loses its "proposed" status.

There were possibly one or two "bugs" in it as first revealed to the representative group of manufacturers who met in Washington last Friday, but these, we understand, have been worked out satisfactorily. The proposed Order in itself demonstrates that the department which drew it up has a thorough working knowledge of the industry and the services the industry performs.

#### MERITORIOUS FEATURES OF PROPOSED LIMITATION ORDER

Chief merits of the proposed limitation order on commercial refrigerating and air conditioning equipment are, as we see it, these two:

(1) It is an "input," order, rather than the "output" type which was applied to household refrigeration. In twopenny language, that means the quantity of units produced is not limited—just the amount of scarce materials going into those units. Thus the manufacturer is given full incentive to use alternate materials, to simplify designs, and to standardize.

(2) It does not regulate types of equipment so much as it does the uses to which that equipment is put. It recognizes, for example, that beer

cooling equipment can also be used to control vital photographic processes.

These are eminently sane and reasonable approaches to the extraordinarily difficult problem of curtailing civilian production in a just and equitable manner. As a result of the fair treatment it has been given, the industry should cooperate wholeheartedly with the OPM in the administration of the order, as soon as it is put into effect.

#### RECOGNIZES ESSENTIALITY OF MANY USES OF REFRIGERATION

Perhaps even more important, from a long term viewpoint, than the method of approach to this order is the obvious fact that it recognizes the essentiality of many uses of commercial refrigeration and air conditioning.

This is a recognition which the industry has been sure it deserved, and which it has long been awaiting. Given this recognition, and having some assurances as to the shape of things to come, the industry can now begin to plan a bit.

Dread uncertainty, which had hung over the industry like a pall, is now relieved by revelation of the course which has been charted.

Several weeks ago readers of this column saw indications of this course, and all of us should be gratified that these indications are now close to becoming realizations.

One thing: Being granted input regulation instead of output restrictions is more than a privilege. It is also an opportunity and a mandate. It is evidence of confidence in the progressiveness and ingenuity of the manufacturers and designing engineers in the commercial refrigeration and air conditioning business. We must justify that confidence.

#### INDUSTRY MUST JUSTIFY CONFIDENCE SHOWN IN IT

Now it is up to us to stretch these scarce materials as far as they can go; to devise new and simpler methods of performing necessary functions; to experiment with alternate materials and make them work; in short, to be creative and inventive.

The OPM has now given this industry a "break." It's up to us to measure up to that grant of confidence and acquiescence on the point of essentiality by using progressively less and less strategic materials.

This, of course, is much easier said than done. But these are days when the nation has a right to expect miracles. We can best contribute to the Victory Program by using our training and talents to devise new methods of accomplishing old purposes in the industry to which we have devoted the useful and productive years of our lives.

Refrigeration will help win the war.

### QUOTED

#### SENSIBLE DEFENSE COOPERATION

WE are all ready and willing to give all we possess in property, in labor, our very lives if need be, in the defense of our country against any enemy from within or outside our boundaries.

None of us object to making any sacrifice. All any of us ask is, that that sacrifice be well justified and evenly distributed among all our citizens.

All of us appreciate the suddenness and

### They'll Do It Every Time . . . . . By Jimmy Hatlo



vastness of the defense program and the necessity for quick drastic action. The whip cracking policy was undoubtedly necessary to start the wheels of industry rolling towards defense materials. The needs of any army are great. Add to that the burdens of supplying necessities to many foreign allies and it is easily understood how great is the burden on the resources of a country even as great, as flexible, and resourceful as America.

America, through habit, by the very nature of our way of living, WASTES and SQUANDERS almost enough in material goods, food, labor, and power every single day to supply not only our armed forces but those of England also. Living in a country of great abundance in all that one needs will also lead to extravagant wasteful habits.

If the government agencies will accept the cooperation offered by industry much of this waste can be recovered and used in this vast defense program. Substitution of materials for those that have been used in the past, largely because there was plenty, will deliver tons of materials not only to defense but will accomplish another important need—it will make it unnecessary to close down many a small business because of a shortage of materials—and the consequent laying off of help.

The refrigeration industry has done much to conserve food, power, and labor. Modern, efficient equipment . . . will save merchants hundreds of thousands of dollars annually in labor, power, and foods. The retail merchant owes that as his part of the defense program.—"Super-Cold News."

#### "YOUR ORDER" (Just in fun)

Keep your temper, Gentle Sir,  
Writes the manufacturer,  
Though your goods are over-due,  
For a month or maybe two.  
We can't help it, please don't swear.  
Labor's scarce and metal's rare.  
Can't get steel, can't get dies,  
These are facts, we tell no lies.

Harry's drafted, so is Bill,  
All our work is now uphill,  
So your order, we're afraid,  
May be still a bit delayed.  
Still you'll get it, don't be vexed  
Maybe this month, maybe next.  
Keep on hoping, don't say die,  
We'll fill your order bye and bye.  
"The Warren Cooler."  
(The Warren Co., Atlanta.)

### LETTERS

#### SWISS INSTITUTE SURVEYS QUICK FREEZING METHODS

Bern, Switzerland

Publisher:

We are taking the liberty of addressing you with the purpose of:

1. Acquainting you with our institute,  
2. Asking you to be kind enough to let us have from your files and practical experience certain data which we need for a survey of quick freezing in the United States.

The "Swiss Frosted Foods Institute" has been organized to create the basis for a sound Swiss quick-freezing industry. It acts in an advisory capacity to firms interested in quick freezing, e.g. producers, canners, cold storage plants, retailers, etc.

It maintains a central file, reference library, and information office. It studies

general procedure and specific problems. It coordinates the various interests to prevent duplication of effort and overlapping of activities.

Its aim is adequately planned and controlled production and careful organization and control of distribution, that bottleneck of quick freezing.

In other words, it is trying to get quick freezing started off right and without a repetition of mistakes made initially in other markets.

Quick freezing has been commercially developed in the United States and up to 1938 German procedure was a copy of American methods. Only recently have the Germans developed equipment of their own, e.g. the new cold air blast processes by Heckermann, Linde, etc.

We have just finished a survey of German developments, where production skyrocketed from a few hundred tons in 1937 to about 140,000 tons for the current year. However, we realize that this is bound up with war developments and that German machinery at least partially reflects shortages of certain raw materials.

For these reasons we do not wish to pattern our coming Swiss quick-freezing industry exclusively on German lines. We are very anxious to complete an up-to-date survey of the quick-freezing industry in the United States and for this are soliciting your kind help.

SWISS FROSTED FOODS INSTITUTE

#### THE DESIGNERS

The designer bent across his board,  
Wonderful things in his head were stored.  
And he said as he rubbed his throbbing bean,  
"How can I make this thing tough to machine?"

If this part here were only straight  
I'm sure the thing would work first rate.  
But 'twould be so easy to turn and bore  
It never would make the machinists sore.  
I better put in a right angle there  
Then watch those babies tear their hair.  
Now I'll put the holes that hold the cap,  
Way down in here where they're hard to tap.  
Now this piece won't work, I'll bet a buck.  
For it can't be held in a shoe or chuck.  
It can't be drilled or it can't be ground  
In fact the design is exceedingly sound.  
He looked again and cried—"At last—  
Success is mine, it can't even be cast."

KEN LANE,  
Lynn, Mass.

#### AIR CONDITIONING METHODS IN SOUTH AMERICA

New York Steel Exchange, Arg.  
Moreno 376  
Buenos Aires, Argentina

Editor:

Mr. Burgin's letter in your June 25 issue is interesting. But air conditioners should form a Vigilance Committee and eliminate him! The idea of saying anything bad about air conditioning!

I have seen spray chambers here with mud a foot thick, composed exclusively of fatal germs, squirming around and giving each other all sorts of fatal disease, to say nothing of the billions of germs blown back into the room, after reaching full growth.

But there are many plants here using alumina or Silica Gel, where the cigarette smoke, sweat odor, and what have you, are adsorbed and eliminated, and are killed by the reactivation gas or air at 300° F. Such plants do not even pollute the outside air. The air is changed four times to 10 times per hour. (There is more Gel capacity in this city than in all the rest of the world together.)

MARK R. LAMB

# Text of New OPM Order P-100 on Repairs and Maintenance

## New Order Succeeds P-22 Regulation

TITLE 32—NATIONAL DEFENSE  
CHAPTER IX—OFFICE OF PRODUCTION MANAGEMENT  
Subchapter B—PRIORITIES DIVISION  
PART 958—REPAIRS, MAINTENANCE, AND OPERATING SUPPLIES  
PREFERENCE RATING ORDER  
PREFERENCE RATING ORDER P-100

958.2 For the purpose of facilitating the acquisition of Material for (1) the maintenance and repair of the property and equipment of producers as hereinafter defined, and (2) the continued operating of the property and equipment of such producers, a preference rating is hereby assigned to deliveries of such material upon the terms hereinafter set forth.

Such terms shall control until such time as the Office of Production Management certifies specific quantities of such Material to which the preference rating herein assigned may be applied, or until the Office of Production Management may specifically limit production by any type of producer or withdraw any type of material from use by such producer, or until the Office of Production Management may issue an order specifically relating to the maintenance, repair, and operation of the property and equipment of any type of producer.

(a) **Statement of Policy.** It is the purpose of this Order to effectuate the policy of the Supply Priorities and Allocations Board in maintaining governmental, charitable, and industrial property located in the United States, its territories and possessions, including the Philippine Islands, upon an adequate operating basis, without expansion or improvement of facilities except where duly authorized or approved. The terms and conditions of this Order are to be interpreted in conformity with this expressed policy.

### (b) Definitions.

(1) "Producer" means:  
(i) any governmental unit;  
(ii) any individual, partnership, association, corporation, or other form of enterprise engaged in one or more of the following capacities to the extent that it is so engaged or so acts:  
(a) manufacturing, processing, or fabricating;  
(b) warehousing—maintaining warehouses for storage or distribution of any Material;  
(c) wholesaling—acting as a distributor of products sold to manufacturers, wholesalers, retailers, or other persons not consumers;  
(d) charitable institutions—any charitable or eleemosynary institution which is recognized as such for purposes of the Internal Revenue Laws of the United States;

(e) carriers—urban, suburban, and interurban common or contract carriers of passengers or freight by electric railway, electric coach, motor truck, or bus, including terminals of any of the foregoing; railroads, including terminals; shipping—commercial carriers of freight and passengers by ocean, lake river, or canal, including terminals;  
(f) educational institutions (including vocational training);  
(g) printers and publisher;  
(h) radio—commercial broadcasting and communication;  
(i) telephone and telegraph communication, including wire services;  
(j) hospitals, clinics, and sanatoriums;  
(k) Petroleum and Natural Gas—discovery, development, and depletion of pools of petroleum and associated hydrocarbons, and derivatives thereof, and transportation of petroleum, associated hydrocarbons, and derivatives thereof;

(l) irrigation systems, whether publicly or privately owned; toll bridges and toll canals.

(iii) Any person using tools or equipment to repair or maintain the property of any Producer as defined in (b) (1) (i) and (ii)

(2) "Material" means any commodity, equipment, accessories, parts, assemblies, or products of any kind.

(3) Subject to subparagraph (6), "Maintenance" means the upkeep of a Producer's property and equipment in sound working condition.

(4) Subject to subparagraph (6), "Repair" means the restoration of a Producer's property and equipment to a sound working condition when such property or equipment has been rendered unsafe or unfit for service by wear and tear, damage, destruction of parts, or similar causes.

(5) Subject to subparagraph (6), "Operating Supplies" means any Material which is essential to the operation of the Producer's business and which is consumed in the course of such business including, but not limited to, lubricants, catalysts, small perishable tools, and ferrous material necessary for the fabrication of containers; *Provided*, it shall not include:  
(i) any Material which is physically incorporated, in whole or in part, into any material which the producer manufactures, distributes, sells, stores, or transports; or  
(ii) any material that is to be used as fuel; or  
(iii) any non-ferrous material to be used as packaging supplies.

(6) The terms "Maintenance," "Repairs," and "Operating Supplies" do not include the following:  
(i) The replacement of an item carried on the Producer's books as a fixed asset;  
(ii) material which would not be carried on the Producer's books as Maintenance, Repairs, Operating Supplies, or the equivalent, in the Producer's established method of bookkeeping;  
(iii) material for the improvement of a Producer's property or equipment through the replacement of Material in the existing installation, unless such equipment is beyond economic repair;  
(iv) material for additions to, or expansion of, such property or equipment.

(7) "Supplier" means any person with whom a purchase order or contract has been placed for delivery of material to a Producer or another Supplier.

(c) **Assignment of Preference Rating.** Subject to the terms of this Order, Preference Rating A-10 is hereby assigned:

(1) to deliveries, to a producer, of Material required by him as Operating Supplies or for the Maintenance or Repair of his property or equipment;

(2) to deliveries to any Supplier, who has received purchase orders rated under this Order from a Producer or from another Supplier, of Material which will be delivered by him or by another Supplier to the Producer to fill such rated orders, or which will be physically incorporated into Material which will be so delivered; or which will be used within the limitations of paragraph (f) (2) hereof, to replace in such Supplier's inventory Material delivered to fill orders rated pursuant to this Order or pursuant to Preference Rating Order No. P-22, as heretofore amended. *Provided*, that when any General Preference ("E" or "M") Order assigns a specific preference rating to deliveries of any particular Material to be used by a particular industry or for a specific purpose, such preference rating shall control and the A-10 rating hereby assigned may not be applied; and *provided further*, that the preference rating hereby assigned may not be applied to deliveries of any Material to be used for purposes prohibited by any Order or Regulation issued by the Director of Priorities.

(d) **Persons Entitled to Apply Preference Rating.** The Preference Rating hereby assigned may be applied by:  
(1) a Producer;  
(2) any Supplier provided deliveries to a Producer or another Supplier are to be made by him, which are of the kind specified in paragraph (c) and

have been rated pursuant to this Order.

### (e) Application of Preference Rating.

(1) A Producer or Supplier, in order to apply the preference rating to deliveries of Material to him, must endorse the following statement on the original and all copies of the purchase order or contract for such Material manually signed by a responsible official duly designated for such purpose by such Producer or Supplier:

"Material for Maintenance, Repair, or Operating Supplies—Rating A-10 under Preference Rating Order P-100 with the terms of which I am familiar."

Name of Producer or Supplier  
Signature of Designated Official

Such endorsement shall constitute a certification to the Office of Production Management that such Material is required for the purpose stated and that the application of the rating is authorized by this Order. Any such purchase order or contract for such Material shall be restricted to Material the delivery of which is rated in accordance herewith.

(2) The Producers and each Supplier placing or receiving any purchase order or contract rated hereunder, shall each retain, for a period of two years, for inspection by representatives of the Office of Production Management, endorsed copies of all purchase orders or contracts, whether accepted or rejected, segregated from all other purchase orders or contracts or filed in such manner that they can be readily segregated for such inspection.

(f) **Restrictions on Use of Rating.**  
(1) Restrictions on Producer and Supplier—No Producer or Supplier may apply the rating hereby assigned to obtain scarce Material, the use of which could be eliminated without serious loss of efficiency by substitution of less scarce Material or by change of design.

(2) **Restrictions on Supplier.**  
(i) No Supplier may apply the rating to obtain Material in greater quantities or on earlier dates than required to enable him to make on schedule a delivery rated hereunder or, within the limitations of (ii) and (iii) below, to replace in his inventory Material so delivered. He shall not be deemed to require such Material if he can make his rated delivery and still retain a practicable working minimum inventory thereof; and if, in making such delivery, he reduces his inventory below such minimum, he may apply the rating only to the extent necessary to restore his inventory to such minimum.

(ii) A Supplier who supplies Material which he has in whole or in part manufactured, processed, assembled, or otherwise physically changed may not apply the rating to restore his inventory to a practicable working minimum unless he applies the rating before completing the rated delivery which reduces his inventory below such minimum.

(iii) A Supplier who supplies Material which he has not in whole or in part manufactured, processed, assembled, or otherwise physically changed may defer application of the rating hereunder to purchase orders or contracts for such Material to be placed by him until he can place a purchase order or contract for the minimum quantity procurable on him customary terms; *provided*, that he shall not defer the application of any rating for more than three months after he becomes entitled to apply it.

(g) **Restrictions on Withdrawals and Inventory.**  
(1) Except as provided in paragraph (g) (3) and (4), no Producer who has applied the ratings assigned hereby shall, at any time, accept deliveries (whether or not rated pursuant to this Order) of any Material to be used as Operating Supplies or for Maintenance or Repair until the Producer's inventory and stores of Material to be used for these purposes

have been reduced to a practicable working minimum. Such practicable minimum shall in no event exceed 110% of the maximum dollar volume of Material to be used as Operating Supplies and for Repairs and Maintenance in inventory and stores during the corresponding calendar quarter of 1940.

(2) Except as provided in paragraph (g) (3) and (4), no producer who has applied the ratings assigned hereby shall, during any Calendar Quarterly Period, make withdrawals from stores or inventory of any Material to be used as Operating Supplies or for Maintenance or Repair the aggregate dollar volume of which shall exceed 110% of the aggregate dollar volume of the withdrawals of such Material during the corresponding quarter of 1940, or, at the Producer's option, 27½% of the aggregate dollar volume of the withdrawals of such Material during the calendar year 1940.

(3) From time to time the Director of Priorities may determine that certain Producers or classes of Producers are exempt, in whole or in part, from the restrictions contained in paragraph (g) (1) and (2).

(4) Restrictions contained in paragraph (g) (1) and (2) shall not apply to any Producer during any Calendar Quarterly Period in which:  
(i) the total volume of his purchases of Material for Maintenance, Repairs, and Operating Supplies does not exceed \$5,000; and  
(ii) the total volume of his withdrawals of Material for such purposes does not exceed \$5,000.

(h) **Audits and Reports.**  
(1) Each Producer or Supplier who applies the preference rating hereby assigned, and each person who accepts a purchase order or contract for Material to which the preference rating is applied, shall submit from time to time an audit and inspection by duly authorized representatives of the Office of Production Management.

(2) Each such Producer or Supplier shall execute and file with the Office of Production Management such reports and questionnaires as said Office shall from time to time request. No such reports shall be filed until such time as the proper forms are prescribed by the Office of Production Management.

(i) **Utilities and Mines Excepted.**  
This Order is not applicable to any Utility defined as a Producer in Preference Rating Order No. P-46 (section 987.1) as amended from time to time, nor to any Operator as defined in Preference Rating Order No. P-56 (section 982.1). The Director of Priorities may from time to time specifically except further classes of Producers from this Order by specific direction.

(j) **False Statements and Penalties.**  
Any person who applies the preference rating hereby assigned in wilful violation of the terms and provisions of this Order, or wilfully falsifies any records which he is required to keep by this Order, or who obtains a delivery of Material by means of a material and wilful misstatement will be forbidden to further apply said rating. Such person may also be prohibited from obtaining further deliveries of Material under allocation and be deprived of any other priorities assistance. The Director of Priorities may also take any other action deemed appropriate, including the making of a recommendation for prosecution under section 35 A of the Criminal Code (18 U.S.C. 80).

(k) **Revocation or Modification.**  
This Order may be revoked or amended by the Director of Priorities at any time as to any Producer or Supplier. In the event of revocation, or upon expiration of this Order, deliveries already rated pursuant to this Order shall be completed in accordance with said rating, but no applications of this rating to any other deliveries shall thereafter be made by the Producer or Supplier affected by said revocation or expiration.

(l) **Effective Date.** This Order shall take effect immediately.

Issued this 18th day of December, 1941.

DONALD M. NELSON,  
Director of Priorities

## Steel Industry Now Working on Strict War Footing

PITTSBURGH—The steel industry has gone on a strict war footing, with indications pointing toward a complete cutting off of non-essential steel requirements. Although defense orders have consistently been given the right-of-way over other requirements, steel companies now anticipate a much greater demand, and emphasize that the Army, the Navy, the Maritime Commission, and lease-lend customers will get first call over all other customers, whether or not the latter have priority ratings.

While steel production will continue to be maintained at maximum capacity consistent with available supplies of pig iron and scrap, the distribution and finishing of steel products are expected to undergo substantial changes. This means that additional plate requirements will have to be met by more and more reliance upon wide strip mills, which in turn will cut down the chances of civilian consumers for obtaining supplies.

It is expected that direct allocations for the main branches of the government will multiply rapidly, with the result that priority-rated business necessarily will have to be filled after allocation tonnages are provided for.

A serious drawback in reaching maximum steel production in coming months, it is said, continues to be the scarcity of scrap metal. It is believed here that a substantial step-up in the number of outright allocations is in the making, and that the allocation of scrap will be tied-in directly with the amount of a steel company's business which comes under the classification of defense requirements.

## Dallas Servicemen Discuss Refrigerant And Pricing Plans

DALLAS, Tex.—Members of the Lone Star Chapter of the Refrigeration Service Engineers Society, meeting in the new plant of Jack Langston Co. recently, elected officers for the coming year and heard J. R. McBrien, manager of Electromotive Corp., refrigeration jobber, outline the government's new restrictions on use of "Freon-12."

J. M. Bibb, veteran service man, was elected president of the chapter; Roy B. Powell, vice president; Corene Endsley, secretary; and M. D. James, treasurer.

Mr. Bibb was also named delegate to the national convention of the R.S.E.S.

After the first of the year, "Freon" will not be readily available for new household refrigerators, Mr. McBrien declared.

While efforts are being made to alleviate the situation, according to Mr. McBrien, he cautioned servicemen to comply wholeheartedly with the present regulations, as serious penalties are provided for violators.

Voting to join with the national society in publication of a suggested price list for general use of servicemen, the Lone Star Chapter added the recommendation that the booklet be in loose-leaf form to permit future insertions.

The proposed price list would be based on data submitted by all R.S.E.S. members.

92 Pages of  
Practical Information  
for  
Refrigeration Engineers

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MANUAL



This new Methyl Chloride Manual contains chemical, physical, physiological and refrigerating data . . . tables of thermo-dynamic properties . . . engineering information . . . handling and servicing methods. Send for your free copy today!

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## CLASSIFIED ADVERTISING

RATES for "Positions Wanted," 5¢ per word; minimum charge, \$2.50. Three consecutive insertions, 12½¢ per word; minimum charge \$6.25.

RATES for all other classifications, 10¢ per word; minimum charge, \$5.00 per insertion. Three consecutive insertions, 25¢ per word; minimum charge, \$12.50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

### POSITIONS AVAILABLE

**REFRIGERATION SERVICEMAN**—Position available in Northern Ohio for commercial man with low pressure experience. State qualifications and compensation requirements first letter. Include photograph if available. Box 1378, Air Conditioning & Refrigeration News.

**WANTED:** Experienced refrigeration serviceman for shop. Must be experienced in domestic and commercial. References required. Send photo, state salary expected, experience, and all pertinent information in first letter. Permanent position assured if satisfactory. FRIGID SERVICE CO., 119 No. 16th St., Lincoln, Nebraska.

### FRANCHISES WANTED

THIS ADVERTISEMENT is directed to manufacturers of commercial refrigeration and air conditioning equipment having faith and confidence in the future of our country. This advertiser fully appreciates that many refrigeration manufacturers are booked to capacity and are not eager to commit themselves to substantial additional business. Nevertheless, to manufacturers who ARE thinking of the future, we say, "Think of the future NOW!" To these manufacturers who are interested in SALES, we offer the facilities and services of a wide awake, hard hitting, financially responsible sales organization, equipped with a splendid engineering, installation and service department. Showrooms located in central Manhattan, excellent warehouse accommodations, and above all, an organization headed by an individual who has been successfully associated with the refrigeration industry for the past twenty years. Prompt replies will be appreciated. Box 1369, Air Conditioning & Refrigeration News.

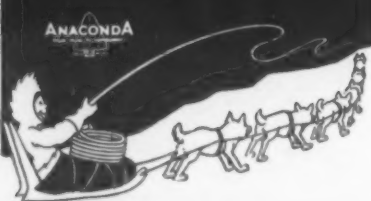
### EQUIPMENT FOR SALE

**SURPLUS STOCK** brand new Westinghouse Low-sides, complete with coils, valves, fans, manual controls, etc. 1 to 2 ton capacity. AC models \$37.50 each. DC models (easily converted to AC) \$24.50 each. Complete stock "as is" or rebuilt refrigerators, also Grunows. Write for prices. ASSOCIATED REFRIGERATOR PLANT, 3028 W. Hunting Park Ave., Philadelphia, Pa.

**FOR SALE:** Complete Ice Rick 35' x 40'. Equipment includes 25 HP Baker ammonia compressor, brine tank, coils, double pipe condenser and circulating pump. All nearly new condition. Sacrifice. Write Franchon & Marco, Inc., 323 West Sixth Street, Los Angeles, California.

## Anaconda Copper Refrigeration Tubes

Unusually long lengths!



THE AMERICAN BRASS CO.  
FRENCH SMALL TUBE BRANCH  
General Offices, Waterbury, Conn.

★★★★★★★★★★



Mills Condensing Units  
By Mills Novelty Company  
4100 Fullerton Ave., Chicago, Ill.

★★★★★★★★★★

# Bus Air Conditioning Systems Have Employed Own Design

## Problems Arise In Condensing Unit Construction

By Jim McCallum

DETROIT—Some of the problems of designing and maintaining bus, truck, and train air conditioning equipment, and how many of these difficulties have been satisfactorily overcome, were related by C. G. Callow, sales manager of the refrigeration division of Waukesha Motor Co., at the December meeting of the Detroit section of the American Society of Refrigerating Engineers.

The Waukesha company started experimenting with highway bus air conditioning back in 1937. Mr. Callow explained, when it became evident that some sort of conditioning equipment was going to be necessary, especially on long distance runs, if the bus lines were to compete with the railroads for passenger traffic.

"This type of activity seemed 'a natural' for us," he continued, "in view of our extensive experience in railway air conditioning. But the problems of bus air conditioning far outnumbered those of the railway activity."

### PROBLEMS INVOLVED

"In the first place, there had been no standardization of bus design. Passenger capacity ranged from 20 to 40 persons. Insulation was inadequate or entirely lacking. Double window sash was non-existent. Frequent stops for loading and unloading passengers added to the difficulties involved."

"Bus air conditioning equipment is subject to greater road shock than railway equipment. The bus air conditioning unit must be strong enough to withstand greater operating abuse than railway equipment and still it must be many times lighter in weight."

"A study of bus construction, seating capacity, and types of service revealed that from 3 to 4 tons of refrigeration were required. A modern bus seats about half as many people as a modern railway car, but has only about 25% of the cubical content. To satisfactorily air condition such a bus meant to supply the proper quantity of filtered, cooled, and dehumidified air to passengers under these circumstances without noticeable draft."

### DESIGN LIGHT UNIT

"The first problem was to design a light-weight condensing unit of adequate capacity. Early in 1937 we had done some research work and built an experimental unit with conventional type equipment using our FC Model engine. This unit, however, weighed 890 pounds, which made it extremely impractical for bus application."

"We concluded that an engine and compressor of special design and light-weight construction were necessary. Working with Ingersoll-Rand engineers, a rotary type compressor was developed which was compact and weighed only 67 pounds, against 280 pounds for a unit of conventional design. The design of this new job provided for direct connection to the engine through a flexible drive coupling and for a refrigerant seal permitting operating speeds from 1,500 to 2,400 r.p.m."

"Condenser equipment also offered major problems. Evaporative condensers were tried at first, but were

found unsatisfactory.

"Overall dimensions of the highway-type 'Ice-Engine' developed by Waukesha Motors were 17 x 22 x 24 inches. Weight was 390 pounds. Capacity was 3 to 4 tons, depending upon speed of operation. Modulated control was provided so that proper capacity to meet operating conditions would be available automatically."

"The Waukesha firm builds only the engine-compressor units. Remainder of the equipment is built into the buses. Use of ingenious ductwork and Burgess ceilings has overcome the problem of drafts."

"Today Waukesha equipment is used in over 2,000 modern air conditioned buses. Bus air conditioning has become a reality."

"After developing this bus air conditioning unit, it was only logical for the Waukesha company to extend its work in the transportation cooling field by adapting its bus unit to the task of refrigerating the large-bodied highway trucks used for long-distance hauling of perishable commodities."

### TRUCK REFRIGERATION

"An independent, gasoline-powered refrigeration unit seemed to fill the bill. The truck-type 'Ice-Engine,' therefore, consists primarily of the same 4-cylinder gasoline engine used in the buses connected directly to a two-stage rotary compressor, instead of a single stage unit. The compound compressor is necessary to meet the low temperatures required in the hauling of such items as frozen food."

"Body of an average truck of this type measures about 28 feet long, 7½ feet wide, and 7½ feet high. Two tons of refrigeration are required to maintain temperatures ranging from 10 to 32° F."

"The compressor used in this application is of the rotating blade type. It is equipped with 10 movable blades which automatically unload the engine during starting. As soon as the engine reaches approximately 300 r.p.m., however, centrifugal force throws the blades into position and the compressor picks up the load."

"Another advantage of this construction is that the compressor does not require any valves other than a check valve at the inlet side to prevent high pressure gases leaking back to the suction side when the unit is stopped."

"Condenser on this unit is of the air type, and is of sufficient size to adequately cool the refrigerant with road temperatures as high as 125°. The condenser is mounted at the front of the unit and in conjunction with the engine radiator. Engine fan is of sufficient size to move enough air through both the condenser coils and the engine radiator."

### DIRECT DRIVE FAN

"Engine fan is driven directly from the crankshaft, thereby eliminating fan belts."

"The truck refrigeration unit, like all other Waukesha units, is so designed and constructed that it can easily be rolled out for service. It is so connected by flexible leads to the truck body that operation and testing can be performed with the unit in either the servicing or traveling position."

"The unit is designed for use with 'Freon' refrigerant and can be used in connection with either cold plate or fin tube types of evaporator. Standard evaporator coil is provided with overhead mounting. A special evaporator coil has been designed for floor mounting in cases where the

**FREEZING WHILE DEFROSTING**

**WATER DEFROST**

FOR FRESH MEATS, CHLORIDE, SULPHUR DIOXIDE, AMMONIA, AND BRINE

**RECORD HIGHER LOW TEMPERATURE EVAPORATORS**

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CANADA No. 394,200  
NEW ZEALAND No. 62,089  
OTHERS PENDING

**REFRIGERATION ENGINEERING, INC.**  
Los Angeles, California, U.S.A.

**Dependable Refrigerants**

**VIRGINIA SMELTING CO.**  
WEST NORFOLK, VA.

# Can There Be Such a Thing as an 'Air Conditioned Apple Storage'?

Readers Debate Terminology of a Story In the News

## 'Bold Statements'

Frick Co., Inc.  
Waynesboro, Pa.

Editor:

On page 2 of your Nov. 19 issue is noted "ROMNEY, W. Va.—First large air conditioned apple storage building in the eastern United States erected by the Fruit Growers Cooperative Storage Association."

These are some rather bold statements as to it being the "first" and "air conditioned" under accepted definitions and we, therefore, presume that you investigated carefully. We will, therefore, appreciate your telling us how the design of the job fits in with the definition of air conditioning.

W. H. AUBREY,  
Vice president and sales manager

Frick Co., Inc.  
Waynesboro, Pa.

Editor:

The story in the lower right hand corner of page 2 of your issue of Nov. 19, describing the new apple storage at Romney, W. Va., brings up the important question of just where the refrigeration field ends and the air conditioning field begins.

Do you wish for your readers to consider that the average apple storage is an air conditioning job, or is refrigeration work?

Doubtless your Editorial Department has reached some pretty definite decision as to what is air conditioning and what is not, and can outline for us your policy in this connection?

Or, this story might have slipped through on the strength of the wording that was sent you by someone outside, without its representing any special ideas on your own part.

It would be appreciated if you would enlighten us, about this.

TERRY MITCHELL,  
Advertising Department

Answer: You say that "this story might have slipped through on the strength of the wording that was sent you by someone outside, without its representing any special ideas on your own part."

That is just about what happened. The story was submitted by one of our field correspondents, who undoubtedly got it from someone who had something to do with the installation. The copyreader made a number of changes in the story as submitted, but apparently was nodding a little when he let the words "first" and "air conditioned" go through.

We would be inclined to look upon this job generally as a "commercial refrigeration job" rather than an air conditioning installation. If any of our staff had obtained the story directly, I am quite sure that it would have been treated as such.

However, the company that installed it apparently looks upon it as an "air conditioned" apple storage. We'll try to get some additional facts about it.

## The Argument For

16 Round Top St.  
Pittsburgh, Pa.

Editor:

With reference to your letter about the story on the apple storage installation, which I submitted, I pass on the following further statement from my source:

load (such as meat) is hung from the roof of the truck body, and all available space is required for pay load.

"Each of these evaporators is equipped with spray header for defrosting and blower fan with 12-volt electric motor drive. Current for this motor is supplied by a special 400-watt generator driven by the internal combustion engine."

"Waukesha-equipped trucks are now being used by the U. S. Army for transporting and holding frozen and hanging meat."

"Despite the work which has been done along this line, truck refrigeration is still a wide open field."

"Still another field in the transportation industry which offers great possibilities for mechanical refrigeration is the railway refrigerator car."

"Numerous attempts have been made to provide this type of service, but thus far no satisfactory answer to the problem has been found. The Waukesha company has operated mechanical refrigeration units on railway refrigerator cars for the past two years, and the experience gained has proven the value of this type of equipment. It is reasonably safe to predict that equipment of this type will be turned out on a production basis by 1943."

"Point is that it (the installation) is an apple storage that is refrigerated by using air conditioning methods. Instead of scattering ammonia pipes around the room, we circulate treated air." In other words the installation is "just a combination" of air conditioning and refrigeration.  
LEON LEFFINGWELL,  
Correspondent

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Positive Sealing at Three Essential Points

**COMMERCIAL REFRIGERATORS**

World's most complete line of commercial cabinets—13 to 84 cu. ft. capacity.

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Established **CURTIS REFRIGERATION** 1854

AIR CONDITIONING AND COMMERCIAL

**Curtis Refrigerating Machine Division**  
of Curtis Manufacturing Company  
1912 Kienlen Ave. St. Louis, Mo.

For Greater Dust Capacity, Specify—

**AIR-MAZE**  
Permanent Air-Filter Panels  
AIR-MAZE CORP., CLEVELAND, OHIO

**FLOOR TYPE UNIT COOLERS**

For Large Refrigerators

**KRAMER-TRENTON CO.**  
TRENTON, N. J.

**KERO TEST**

Valves and Fittings  
The Standard of the Industry

**Kerotest Manufacturing Co.**  
Pittsburgh, Pa.

For: TRUCKS, LOCKERS, COOLERS, COUNTERS, CABINET CONVERSIONS, etc.

## KOLD-HOLD PLATES

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## Fuller Gives Hints on Motor Installation That Will Help Avoid Future Troubles

By R. A. Fuller, Industrial Engineering Dept., General Electric Co.

### Installation of Motors (Cont.)

**Editor's Note:** To help servicemen become better informed on electric motors, the News is publishing a series of articles written by R. A. Fuller of General Electric Co.'s industrial engineering department. These articles, of which the following is the tenth, discuss fundamentals of various types of motors, particularly those used in refrigeration and air conditioning equipment. Future instalments will describe the maintenance and servicing of motors.

#### Pulley

Severe pounding, to drive a pulley on the motor shaft, may cause a bent shaft or damage to the bearings. A little care in removing paint from the shaft and light filing of any rough spots on the shaft, key, and pulley bore should eliminate the need for any severe pounding.

#### Electrical Connections

Due to the limited space in household refrigerators, beverage coolers, water coolers, and similar equipment, it is a good policy to make the electrical connections to the motor before bolting it in place. If the connections are such that a nut or screw may accidentally fall inside the motor, the motor can then be turned up on end and shaken to remove the loose part.

All connections should be made tight enough so that the vibration of the equipment will not be able to loosen them. Wires joined in a conduit box should be either twisted together and soldered or bolted together. These joints should be wrapped first with rubber tape and then with friction tape. Wires issuing from a conduit box, especially rubber covered extension cords, should be held in some way so that there is no strain on the connections themselves.

Usually a knot in the wire inside the conduit box, or the use of conduit box fittings that grip the wire where it leaves the box, are the most convenient ways to get this strain relief. Many fractional horsepower motors are equipped with special terminal boxes that are made so that they will grip the wires issuing from them.

It is good practice to check the motor nameplate to make sure that the motor has the correct horsepower, voltage, and frequency rating for the job. If the motor is rated for two voltages it is well to check that it is connected for the proper voltage. The proper connections may be shown on the motor nameplate, in a diagram on the inside of the conduit box cover or in the instruction book that accompanies the motor.

A very common type of connection is that of the 110/220 volt single phase motor equipped with four leads. In case the terminal markings on the leads, or one of these motors, are lost or the connection diagram is not available, proceed as follows: Disconnect all four leads from each other if they are connected. Connect

one lead to one side of the power supply and test for the other end of the winding with a test lamp as shown in Fig. 49.

The test lamp should have a voltage rating suitable for use on the power supply.

The test lamp lights when the correct lead is located. Label these two leads 1 and 2. The other two leads are, of course, the terminals of the other winding and can be labeled 3 and 4. Connect the leads for the proper voltage as shown in Fig. 50. Apply power to the motor

riding continuously on the commutator, including single phase motors of this description, needs attention to the brushes when the motor is reversed. Fractional horsepower direct current motors, and some of the larger sizes, may have radial brushes—which meet the commutator at right angles or, in other words, point directly toward the center of the shaft. Fig. 52A illustrates such a brush with the play, of the brush in the brush holder, exaggerated.

When the motor is reversed, as shown in Fig. 52B, it is obvious that the brush should be sanded to make it fit the commutator for the new direction of rotation. The sanding should be done with fine sandpaper—NEVER USE EMERY CLOTH—placed between the brush and the commutator.

The sandpaper should be moved only in the direction of rotation, in sanding, so that the position of the brush in the brush holder will be the same as that which it will assume when the motor is running. A convenient method, frequently used in sanding brushes, is to wrap a strip of sandpaper around the commutator and then to turn the armature by hand in the proper direction.

After the brushes have been sanded to a good fit to the commutator, the motor should be run without load until each brush has a

Fig. 52—Reversing Motor Fig. 53—Changing Brush

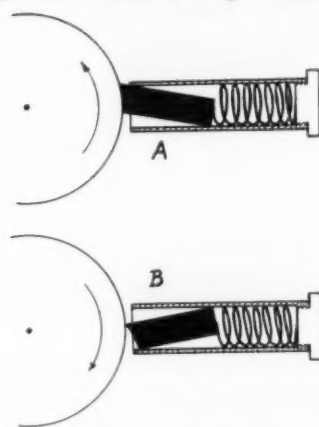


Fig. 52—When a motor is reversed the brushes should be sanded to fit the commutator. With the motor traveling in normal direction (see A above) the brush makes full contact, but if the direction is reversed (see B) the brush does not fit the commutator.

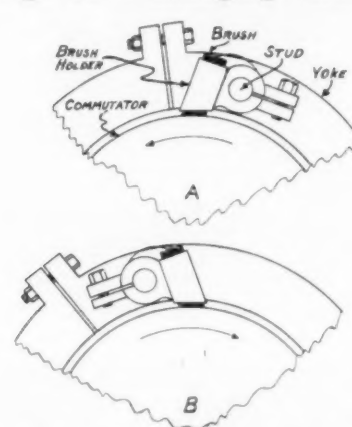


Fig. 53—In reversing a direct current motor which has the brushes set at an angle as shown here, it is necessary to replace the brushes so that they make contact at exactly the same point on the commutator. The armature is blocked and the yoke moved to the new position.

fine polish over at least two-thirds of the surface that rests on the commutator.

Many direct current motors of 1 hp. and larger have the brushes set at an angle to the commutator as shown in Fig. 53A. This illustrates the brush rigging as viewed from the inside the motor looking toward the commutator end. The yoke clamps on a cylindrical part on the inner side of the end shield.

When these motors are to be reversed, the armature should be blocked, the position of the brushes marked on the commutator, the brush holders removed from the

studs, the yoke rotated and the brush holders replaced as shown in Fig. 53B so that the brushes make contact with the commutator at the exact original point of contact.

The clearance between the brush holder and the commutator should be identical with the original clearance to insure obtaining the proper angle between the brush and the commutator.

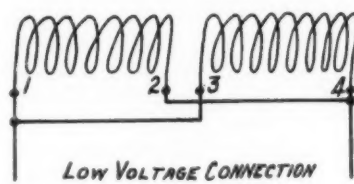
When these changes are made in the brush rigging, they should be followed by the sanding and polishing operations covered in the preceding paragraph.

(To Be Continued)

Fig. 50—Connections



HIGH VOLTAGE CONNECTION



LOW VOLTAGE CONNECTION

Fig. 50 diagrams the connections for both high and low voltage operation of a 110/220 volt single phase motor.

for just an instant. If it fails to start immediately, exchange leads 3 and 4 and apply power again.

Fig. 51 illustrates the details of the connections. To simplify the picture only one of the main poles and one of the computing poles are shown. To reverse the motor, by reversing the current flow in the armature, exchange leads E and F.

Fig. 51—Wiring Details

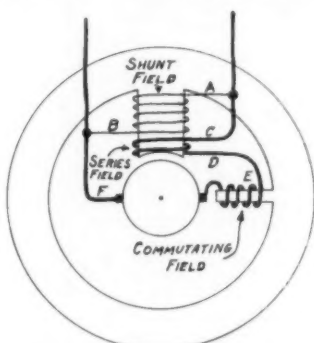


Fig. 51 illustrates the details of the electrical connections diagrammed in Fig. 50.

To reverse the motor, by reversing the current flow in the main field windings, exchange leads A and B and exchange leads C and D.

In other words, if the motor has a series field it should be reversed when the shunt field is reversed; if the motor has a commutating field it should be reversed when the connections to the armature are reversed.

The terminals of the series field windings are often much heavier than those of the shunt field windings. They can thus usually be identified easily. The shunt field windings on all poles may be connected in parallel with only two wires connecting all the shunt windings to the line. When this is the case all the shunt field windings can be reversed by exchanging only two wires.

When a motor is equipped with brush rigging (the complete assembly of brush holders and their supporting framework) that can be rotated, it may be possible to rotate it through an angle equal to the spacing between brushes and thus reverse the current flow through the armature.

This should be done accurately by blocking the armature and marking the position of the brushes on the commutator before the brush rigging is rotated. A study of the changes to be made in the connections, before the changes are made, may show several short cuts like these.

Any motor which has the brushes

Fig. 49—Testing Leads

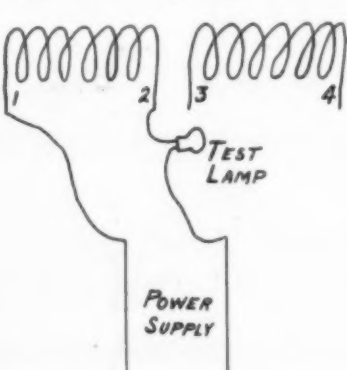


Fig. 49 illustrates the method of "pairing up" the four leads from a 110/220 volt single phase motor by means of a test lamp, if the terminal markings are lost or a motor diagram is not available.

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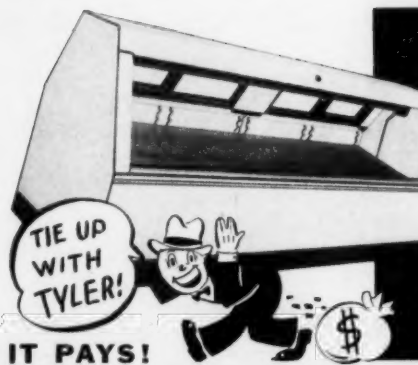
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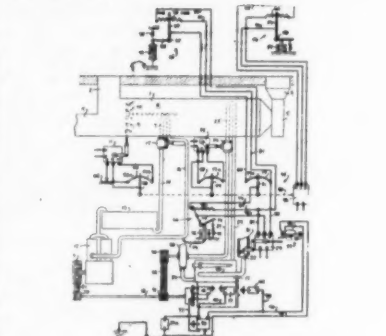
## PATENTS

Weeks of Nov. 25 & Dec. 2

**2,263,831. GASKET FOR REFRIGERATOR DOORS AND THE LIKE.** Adrian Welch, Middlefield, Ohio, assignor to The Johnson Rubber Co., Middlefield, Ohio, a corporation of Ohio. Application March 22, 1940, Serial No. 325,354. 5 Claims. (Cl. 20-69.)

2. A gasket element consisting of an elongated unit of rubber including a hollow cushion member having an outwardly bulged contact portion characterized by longitudinal grooves on its inner side that define bending lines when the cushion member is compressed and under which circumstances one of said grooves expands while others on opposite sides of the former groove contract.

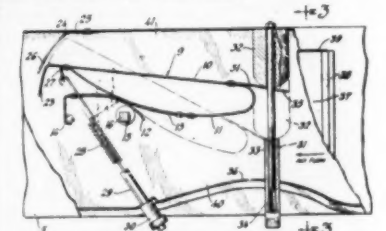
**2,263,929. AIR CONDITIONING SYSTEM.** William L. McGrath, St. Paul, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application May 14, 1938, Serial No. 208,090. 16 Claims. (Cl. 257-3.)



8. In an air conditioning system, in combination, a conditioning chamber, means for passing air through said conditioning chamber to a space being conditioned, a cooling and dehumidifying device in said chamber, means for actuating said cooling and dehumidifying device, a bypass for the air around said cooling and dehumidifying device, damper means for varying the proportions of the air passing through said device and said bypass.

14. In an air conditioning system, in combination, an air conditioning chamber through which air for conditioning a space is adapted to be passed, cooling and dehumidifying means in said chamber, varying means for varying the action of said cooling and dehumidifying means.

**2,263,980. AIR CONTROL MECHANISM.** Wilbur L. Carlson, Rochester, N. Y., assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application June 16, 1938, Serial No. 214,097. 14 Claims. (Cl. 137-152.)



3. The combination with a duct for conveying air under pressure, of means to regulate the volume of airflow through said duct comprising a damper in said duct, means supporting said damper intermediate its ends, a spring connected to one end of said damper and exerting an opening force thereon, and a weight acting upon the opposite end of said damper and exerting a closing force thereon, and means to mount said weight arranged to provide sliding frictional resistance to changes in the position of said damper.

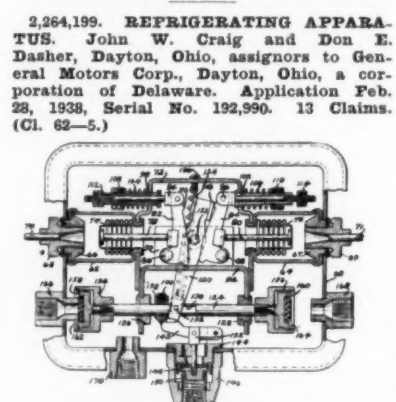
13. The combination with a duct for conveying air under pressure, of means to vary the volume of airflow through said duct comprising a damper in said duct, means for mounting said damper in said duct in spaced relation to opposite walls thereof so that opposite sides of said damper are exposed to air passing through said duct, said mounting means including a fulcrum for said damper intermediate the ends thereof which is variable on movement of said damper, and said damper being so constructed as to

move on said fulcrum in accordance with changes in air velocity in said duct.

**2,264,136. COMPRESSOR VALVE.** Arvid E. Karlberg, Chicago, Ill., assignor to Chicago Seal Co., Chicago, Ill., a corporation of Illinois. Application Nov. 27, 1940, Serial No. 367,422. 8 Claims. (Cl. 251-144.)

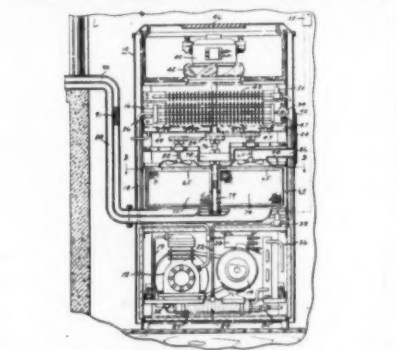
1. A replaceable valve and valve seat for use in association with a compressor, comprising a valve body having a port opening, a valve seat removably mounted in said body and having an opening in registry with said port, a sealing member interposed between the valve seat and said body and having an opening registering with the opening in said body and the said port, a valve bonnet carried by said body for holding said valve seat against said seal and to said body, a valve disk interposed between said valve seat and said bonnet, and when quiescent, adapted to seat on said valve seat, a valve stem separate from the valve and adapted to engage said valve disk, said stem being movably mounted in said bonnet, said valve disk being movable with and with respect to said stem, and resilient means engaging one end only of said valve stem for exerting a pressure on said valve disk.

**2,264,199. REFRIGERATING APPARATUS.** John W. Craig and Don E. Dasher, Dayton, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 23, 1938, Serial No. 192,990. 13 Claims. (Cl. 62-5.)



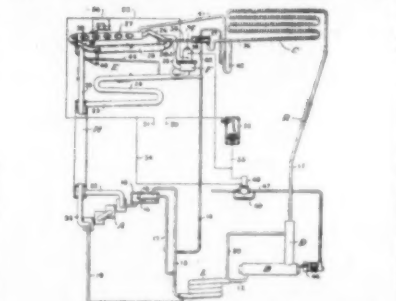
1. Refrigerating apparatus including a twin generator-absorber system, a burner means for each of said generator-absorbers, means for supplying fuel to each of said burner means, said supply means including means for alternately changing the supply of fuel from one burner means to another, said supply means being provided with means for supplying fuel to both burner means for a limited period of time when changing the supply of fuel from one burner means to another burner means.

**2,264,221. CONDITIONING APPARATUS HAVING MEANS FOR CONTROLLING THE TEMPERATURE AND RELATIVE HUMIDITY OF AIR.** Harry F. Smith, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 31, 1937, Serial No. 134,053. 4 Claims. (Cl. 62-140.)



3. A self-contained air conditioner comprising in combination, a cabinet, an evaporator in said cabinet, refrigerant liquefying means for supplying refrigerant to said evaporator, means for circulating air to be conditioned over said evaporator, a hygroscopic medium within said cabinet arranged in the path of air to be conditioned, and means within said cabinet for reconditioning said hygroscopic medium.

**2,264,292. REFRIGERATION.** George A. Brace, Winnetka, Ill., assignor to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application July 30, 1938, Serial No. 230,195. 34 Claims. (Cl. 62-5.)

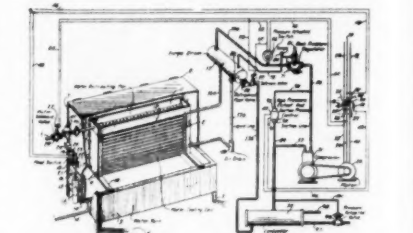


10. Refrigerating apparatus comprising a solution circuit including a boiler and an absorber, a cooling medium circuit including said boiler and absorber and a cooling unit, means for elevating weak solution to the level of said absorber, means for allowing a pre-determined quantity of such solution to flow through said absorber, and means for returning excess solution to said elevating means.

**2,264,385. LIQUID CONDITIONING SYSTEM.** Charles Knox, Omaha, Neb., Application April 30, 1939, Serial No. 268,885. 11 Claims. (Cl. 62-4.)

1. An apparatus of the character described including a heat exchanger, means including a compressor for circulating a refrigerant through the heat exchanger, a storage reservoir, means for passing a liquid to be conditioned through the heat exchanger and to the storage reservoir, an electro-magnetic device controlling

supply of said liquid to the heat exchanger, a motor for operating the compressor, a current supply circuit for said motor, a magnetic switch in said current supply circuit, including a solenoid, a



circuit connecting the electro-magnetic device with the current supply circuit and adapted to be energized upon closure of said magnetic switch.

**2,264,536. REFRIGERATOR.** Walter A. Kuenzli, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application April 12, 1937, Serial No. 136,256. 3 Claims. (Cl. 20-35.)

1. Refrigerator cabinet structure including a door and having spaced apart wall members, one of said wall members having openings adjacent the edge portions thereof, brackets for maintaining said members in spaced relation, attaching means for securing said brackets to said wall members comprising means for removably attaching one side of said brackets to one of said wall members and a second attaching means for removably securing the other side of said brackets to the other of said wall members, said second attaching means comprising a pair of cooperating elements one of which is removably secured to said wall member within said openings and positioned to underlie said brackets.

(Concluded on Page 11, Column 1)

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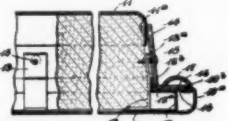
**Bush Mfg. Co.** **FINNED TUBE PRODUCTS**

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# Patents (Cont.)

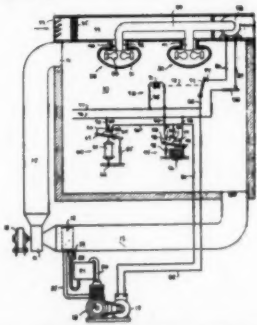
(Concluded from Page 10, Column 5)

2,264,543. **REFRIGERATOR.** Carl H. Sauert, Evansville, Ind., assignor to Savel, Inc., New York, N. Y., a corporation of Delaware. Application Jan. 12, 1940, Serial No. 313,627. 7 Claims. (Cl. 20-35.)



3. In an insulated cabinet, inner and outer walls provided with opposed spaced apart marginal edges, said wall members being adapted to receive insulation therebetween, a cover strip member overlying said edge portions, attaching means for resiliently holding said strip member over said edge portions, one end of said attaching means being secured to a portion of one of said walls, the other end of said attaching means comprising a resilient arm portion adapted to project into the space between said edge portions, and means connecting said strip to said arm portion, said arm portion being adapted to resiliently urge said cover strip inwardly and to hold it under tension against said edge portions.

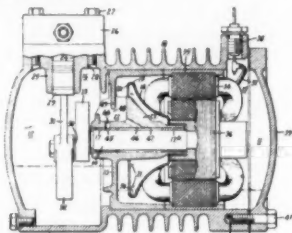
2,264,544. **AIR CONDITIONING SYSTEM.** Alvin B. Newton, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Nov. 14, 1938, Serial No. 240,324. 6 Claims. (Cl. 257-3.)



1. An air conditioning system for a space having heat generating means therein, means for preventing heat generated by said generating means from being transferred to the space comprising means for conveying the heat generated by said heat generating means to the outside of the space being conditioned, means for circulating air through the space being conditioned, cooling means for cooling the air being circulated through the space, temperature and moisture responsive means for causing operation of the cooling means whenever there is a need for the removal of sensible or latent heat from the space, and means for interrupting operation of said heat conveying means in response to a demand

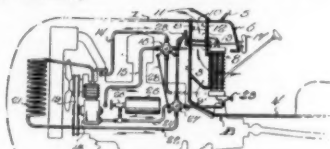
for operation of said cooling means for the removal of latent heat only.

2,264,847. **REFRIGERATING APPARATUS.** Wilfrid E. Johnson, Port Wayne, Ind., assignor to General Electric Co., a corporation of New York. Application May 10, 1939, Serial No. 272,853. 4 Claims. (Cl. 230-206.)



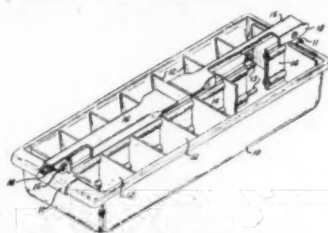
3. In combination with a compressor of the type including a casing having a partition dividing said casing into a motor compartment and a compressor compartment, a motor in said motor compartment, said partition having a bearing for a rotating shaft, a rotating shaft in said bearing operatively connecting said motor and said compressor and said partition having a lubricant passage for conducting lubricant from said compressor casing to said shaft, means including a rotatable deflector for returning to said compressor compartment lubricant which leaks through said bearing into said motor compartment.

2,264,848. **AIR CONDITIONING APPARATUS FOR CLOSED AUTOMOBILES.** Joseph D. Kahl, Ripon, Wis. Application Sept. 5, 1939, Serial No. 293,453. 1 Claim. (Cl. 257-7.)



In an air conditioned apparatus for motor vehicle bodies, spaced cooling and heating radiator cores, a fluid supply line connected with each of said cores, a control valve in each of said supply lines, an air duct communicating with said cores and the exterior of said vehicle body, and a manually controlled gate valve in said duct for selectively directing air against one or the other of said cores, said gate valve and control valves being operatively connected for simultaneous operation, whereby the fluid supply line to the core against which air is directed from said duct is opened.

2,264,849. **REFRIGERATION.** William H. Klotz, Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio. Application Sept. 5, 1939, Serial No. 293,390. 11 Claims. (Cl. 62-108.5.)

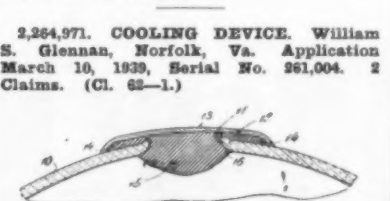


1. A grid assembly comprising a plurality of apertured spaced apart laterally extending grid members, vertically spaced elongated elements extending through the apertures in said laterally extending grid members and connecting them together, flexible spacers between said spaced apart grid members, said spacers and elongated elements constituting a longitudinal grid member and means secured to the ends of said longitudinal grid member forming handles whereby the longitudinal grid member may be twisted for removing ice from the grid assembly.

2,264,961. **THERMAL INSULATION STRUCTURE.** Paul A. Ward, St. Paul, Minn., assignor to Wood Conversion Co., Cloquet, Minn., a corporation of Delaware. Application June 21, 1937, Serial No. 149,373. 3 Claims. (Cl. 20-4.)

1. A wall structure for separating a warm atmosphere from a cold atmosphere of which the temperature lies below the dewpoint temperature of the warm atmosphere, comprising in combination a series of spaced wall supports, bulk insulating material on the cold side of said supports, a cold side finishing structure secured to said supports and including the insulation material between it and said supports, and moisture-vapor transmitting sheet material interposed between said insulation material and said finishing structure providing direct facial contact with both and providing facially ventilating space in the wall between said sheet and said finishing structure, which space ventilates preferentially to the cold atmosphere.

2,264,971. **COOLING DEVICE.** William S. Glennan, Norfolk, Va. Application March 10, 1939, Serial No. 261,004. 2 Claims. (Cl. 62-1.)



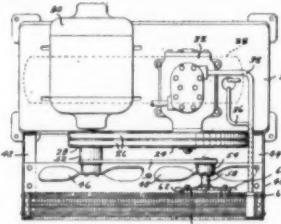
1. A cooling device of the sort described comprising a shell having an opening for the introduction of the liquid that is sealed in the shell and is frozen when the device is used, the portion of the shell surface immediately surrounding the opening being laterally extended therefrom, a closure for said opening comprising a thin metal cap larger than the

opening and extending laterally to overlie the said portion of the shell surface, and having an internal rim spacing the body of the cap slightly from said portion of the shell surface, in combination with a water resistant adhesive seal between the cap and the said portion of the shell surface.

2,264,976. **THERMAL INSULATION.** Clark C. Heritage, Cloquet, Minn., assignor to Wood Conversion Co., Cloquet, Minn., a corporation of Delaware. Application Aug. 3, 1938, Serial No. 222,738. 4 Claims. (Cl. 20-4.)

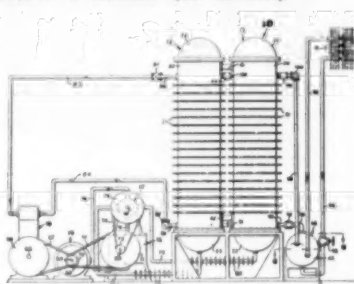
1. A wall or ceiling structure comprising a series of spaced parallel supports which define a partition between a cold atmosphere and a warm humid atmosphere, thermal insulation bodies between said supports inwardly of the warm-side wall forming faces of said supports, an air-sealing membrane over the warmside of said insulation, said membrane extending on each side to provide at least a part of a flange and lying at least in part over a warm-side face of a support, a flange carried by each insulation body including reinforcing material to thicken the flange, said reinforcing material being absent at an edge portion of the flange whereby there is provided a relatively thick portion of the flange and a relatively thin edge portion, said two portions including said membrane.

2,265,054. **REFRIGERATING APPARATUS.** Marshall W. Baker, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application May 26, 1939, Serial No. 275,953. 3 Claims. (Cl. 62-115.)



1. A refrigerant liquefying unit comprising, a compressor element and a motor element located at a side of the compressor element, the shafts of said elements being disposed in parallel relation to one another, a condenser confronting and extending substantially across said motor and compressor elements and being disposed substantially perpendicularly to the axis of said shafts, means associated with the shafts of said elements and forming a driving connection therebetween, said driving connection being located intermediate said elements and said condenser, a first fan adjacent one portion of said condenser mounted upon and rotatable with the shaft of said motor, another shaft rotatably carrying a second fan adjacent another portion of said condenser, means associated with said motor shaft and forming a driving connection for said second fan.

2,265,084. **REFRIGERATING APPARATUS.** Ian Du Bois Smith, South Pasadena, and Conrad Robert Buchet, Los Angeles, Calif. Application Oct. 11, 1940, Serial No. 360,824. 6 Claims. (Cl. 62-115.)

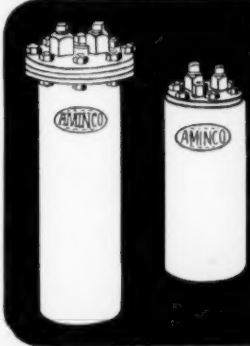


1. A refrigeration apparatus including a tank, a receiver and an expansion coil, a compression member, a cylinder member within said tank, a refrigerant in said tank and surrounding said cylinder, a liquid in said cylinder, means to reciprocate said liquid, valve means to cause the liquid to act as a piston to draw refrigerant material into said cylinder and force it therefrom to said compressor member, means whereby said compressor member forces refrigerant into and through said receiver to said expansion coil and means to direct said refrigerant from said expansion coil into said tank.

## PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

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## P-100 Order Has Minor Changes; Supplants P-22

(Concluded from Page 1, Column 3) any general preference ("E" or "M") order is assigned a specific preference rating to deliveries of any particular material to be used by a particular industry for a specific purpose, such preference rating shall control and the rating granted by P-100 will not be applicable. The order provides further that the preference rating granted by P-100 may not be applied to deliveries of any materials to be used for purposes prohibited by any order or regulation issued by the Director of Priorities.

The restriction on withdrawals from inventory or stores has also been changed to permit withdrawals up to 110% of the aggregate dollar volume of such withdrawals in the corresponding quarter of 1940 or at the producer's option up to 27½%, in any one quarter, of the aggregate dollar volume of withdrawals during the calendar year 1940.

The new P-100, in functioning through a wholesale parts supply house setup, will start with someone covered by the plan (as defined in the order) who will write on his purchase order "Material for maintenance, repair, or operating supplies—Rating A-10 under Preference Rating Order P-100 with the terms of which I am familiar." The big change from P-22 for the parts jobber is that he can now accumulate such A-10 ratings until he gets enough to put in a commercial order (or a "standard package").

The rating granted by P-100 may not be used for the replacement of any items carried on the producer's books as a fixed asset. Questioned as to what would be the case where a plant or place of business entitled to rating under the plan was destroyed by fire, an OPM official made the somewhat ambiguous statement that such a place could be 100% repaired if the repair didn't get into the company's books as fixed assets.

## 1941 Best Year For G-E Cooling Dept.

(Concluded from Page 1, Column 2) tapered off after that period, he asserts.

"The oil shortage, here, the current curtailment in materials—these and other factors are now contributing to the leveling-off of the sales curve," Mr. Rainbault continues.

"Obviously, forecasts for the immediate future are extremely difficult to make, due to these changing conditions. We know, however, that it will be necessary for us to place a continuing and increasing emphasis upon war requirements. This is our first job, in common with all other industries.

"Moreover, we believe that there will be sufficient materials available to us in 1942 to provide some fair portion of the civilian consumer demand for the equipment we manufacture—domestic heating and air conditioning and commercial refrigeration. Our products are growing in public acceptance, and our competitive position in most lines is strong, and although the year 1942 will be a critical period for us, we are confident that ingenuity, aggressiveness, and thorough knowledge of markets will bring us through this uncertain period, and that when the emergency is over we will be in a better-than-ever position to supply an increasing demand for our products."

## Keep Prices Down, OPA Asks China, Lamp Firms

WASHINGTON, D. C.—Manufacturers in seven more consumer durable goods industries—china, glass, lamps, lampshades, clocks, watches, and silverware—have been asked by the Office of Price Administration not to raise prices on current items above the levels prevailing on Dec. 1 of this year. In cases where this is not possible, the manufacturers are asked to advise OPA well in advance of any contemplated changes.

## Ruling of Reserve Board Hits Use of Demonstrators

(Concluded from Page 1, Column 2) the dealer to take back the demonstrator and give back the deposit and the trade-in, if any, without being under any obligation to purchase the demonstrator or similar article, or under any other obligation whatsoever to the dealer."

The difference between the two cases, the Board explained, is that in the first case there was a contract of sale coupled with a side agreement which, in effect, would avoid the regulation; while in the second case there was no contract of sale, and the prospective purchaser had the right to return the demonstrator and receive back the deposit and old article, if any.

"If, in the second case, there had been a contract of sale, even though it was conditional and the purchaser had the right to rescind," the ruling continued, "it would have been necessary for the seller to obtain the required down payment and to calculate the maturity (in the event the contract became unconditional) from the date of the contract rather than the subsequent delivery of the article."

## National Advertising On Ranges Planned By Kitchen Bureau

(Concluded from Page 1, Column 4) advertisements will feature all the electric cooking operations: surface, deep-well cooker, broiler, and oven, giving actual examples of foods cooked and how electric cooking makes it easy for the housewife to cook her family's meals so to protect important vitamins, minerals, and flavors.

Three new electric cooking "salesmen" have been created by Modern Kitchen Bureau. They are the copywriters tells the "reasons why" righted trade characters "Vitamins," "Minerals," and "Flavor." The characters tell their story of nutrition in jingles, while the copy of the advertisement helps protect them.

The three new characters will be made available by the bureau to dealers and salesmen in advertisements, window displays, counter cards, billboards, direct mail, and all other types of printed advertising. They may be used at any time, since they are restricted to this specific campaign, the bureau points out.

A new 16-page booklet containing complete facts about electric cooking has been prepared by the bureau for dealer and utility "handouts," and will also be offered free in national advertising. The booklet follows up the messages in the advertisements and gives additional information on all phases of modern electric cooking. A special feature of the booklet is a pictured nutrition chart developed by the Committee on Food and Nutrition of the National Research Council.

More than 4,000 copies of a new 1942 "Plan Book," which gives all details of the 1942 range campaign, illustrates all the advertising, and pictures and describes the national program on nutrition, are being mailed to utilities and dealers throughout the country.

## Servicemen 'Enlist' For Hurry-Up Job

ST. LOUIS—Refrigeration service mechanics by the score responded to a hurry-up call by United States Cartridge Co.'s huge \$100,000,000 small arms defense plant during December to speed installation of refrigeration equipment in eight cafeterias and 30 storage coolers in the plant. The more than 250 mechanics already on the payroll could not install refrigeration equipment fast enough to keep pace with cartridge producing lines. All refrigeration service firms in the city supplied as many men as could be made available for a two-week period.

## OPM Plan May Limit Materials In Refrigeration

(Concluded from Page 1, Column 5) relief on the grounds of serious hardship, unemployment, or the impeding of conversion of plant facilities to the production of war material.

There is also a provision that a manufacturer of more than one of the above products may use in producing any one product 120% of the critical materials allocated to that product (according to class), provided that he reduces his use of critical materials elsewhere by an equivalent amount so that his total use of critical materials does not exceed the total amount permitted by the order.

Before doing so, however, he must obtain specific approval from the Electrical Appliances and Consumers' Durable Goods Branch, Division of Civilian Supply, of the OPM.

A number of representatives of the industry came to Washington last Friday on invitation to hear a discussion of this proposed order. The meeting was conducted by Henry Dinegar. OPM's Director General Knudsen made a brief appearance and spoke confidently of the ability of American industry to meet the challenge hurled its way by Hitler, Mussolini, and the Emperor of the Setting Sun.

## Canadian Price Control Program Seen as 'Tip-Off' To U. S. Plans

NEW YORK CITY—Development of Canada's price control program, which went into effect last week, will bear close watching as possibly indicating the trend of price control movements in this country, John E. Hamm, deputy administrator of the Office of Price Administration declared in an interview here last week.

The Canadian program is somewhat experimental in nature, Mr. Hamm explained, and officials in this country are studying it closely to determine how a similar plan, with necessary modifications, might be developed here. The Canadian plan is a check on the retailer to see that he does not charge more for his products than he did in the latter half of September and the first half of October, with a paring of commissions and profits tracing back to the manufacturer.

Informal agreements with manufacturers in this country are now of two general kinds, Mr. Hamm said. First of these applies where there are only a few producers of a strategic product; there are about 12 such groups at present. The second is an agreement with manufacturers not to increase their prices without first discussing the matter with OPA. Such producers are in the appliance industry, the oil industry, the furniture industry, etc.

This system, Mr. Hamm said, has worked smoothly so far, the only difficulties being with certain "violators and chiselers," with whom

there are no legal methods of dealing.

Until we can do something about the cost of living, Mr. Hamm said, it will be impossible to fix prices with any degree of certainty. He stressed the need of a clear legislative basis for the actions of his office.

## Epting, Guyton, Hanson Buy Buffalo Company

(Concluded from Page 1, Column 2) to buy out all of their stock, which was accepted.

A. F. "Frank" Epting, president, owns the A. F. Epting Appliance Co. in Charlotte, N. C., a wholesale distributing firm. R. H. Guyton, vice president and secretary, is a well known refrigeration engineer, and prior to this year had been with Brunswick-Balke-Collender Co. since 1932, with which company he organized the refrigeration department and designed the firm's refrigeration equipment, serving in the capacity of chief engineer.

Paul Hanson, vice president, had been connected with Heinz & Munschauer some 20 years, and has both factory and production experience.

Heinz & Munschauer was organized in 1865. The firm has had a varied history of manufacturing, but for the past 20 years it has concentrated on the manufacturing of refrigerators.

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For the foods richest in these Vital Vitamins are our MOST PERISHABLE FOODS! Take Refrigeration away and you have quickly a Nation of undernourished, vitamin-starved weaklings—not the strong, energetic, alert men and women that America is depending upon for defense of precious freedom.

If Health is the prime essential to National Defense, and Food is the greatest single factor in assuring that radiant Health, then modern Refrigeration and Refrigeration Equipment and parts are also defense tools, and A-P is proud to play a part in maintaining their efficiency.

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